



Report No.: SZEM200900888604

Page: 1 of 85

TEST REPORT

Application No.: SZEM2009008886CR
Applicant: HARXON CORPORATION
Address of Applicant: 9/F, Block B, D3 Building, TCL International E City, No.1001 Zhongshanyuan Road, Nanshan District, Shenzhen, China.
Manufacturer: HARXON CORPORATION
Address of Manufacturer: 9/F, Block B, D3 Building, TCL International E City, No.1001 Zhongshanyuan Road, Nanshan District, Shenzhen, China.
Factory: HARXON CORPORATION
Address of Factory: 9/F, Block B, D3 Building, TCL International E City, No.1001 Zhongshanyuan Road, Nanshan District, Shenzhen, China.
Equipment Under Test (EUT):
EUT Name: Wireless data transceiver
Model No.: HX-DU8616DPRO
Trade mark: eRadio
FCC ID: 2ACRAHX-DU8616DPRO
Standard(s) : 47 CFR Part 2(2017)
47 CFR Part 22 subpart H
47 CFR Part 24 subpart E
Date of Receipt: 2020-09-04
Date of Test: 2020-09-20 to 2020-10-19
Date of Issue: 2020-10-20

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

Keny Xu

Keny Xu
EMC Laboratory Manager



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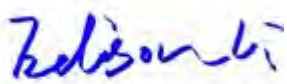


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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2020-10-20		Original

Authorized for issue by:				
				
		Edison Li /Project Engineer		
				
		Eric Fu /Reviewer		



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2 Test Summary

Test Item	FCC Rule No.	Requirements	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §22.913, §24.232,	ERP≤7W(WCDMA BAND V) EIRP≤2W(WCDMA BAND II)	PASS
Peak-Average Ratio	§24.232,	≤13dB	PASS
Modulation Characteristics	§2.1047	Digital modulation	PASS
Bandwidth	§2.1049(h), §22.917, §24.238,	OBW: No limit EBW: No limit	PASS
Band Edge Compliance	§2.1051, §22.917, §24.238,	≤ -13dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block	PASS
Spurious emissions at antenna terminals	§2.1051, §22.917, §24.238,	≤ -13dBm	PASS
Field strength of spurious radiation	§2.1051, §22.917, §24.238,	≤ -13dBm	PASS
Frequency stability	§2.1055, §22.355, §24.235,	≤ ±2.5ppm	PASS



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4 General Information

4.1 Details of E.U.T.

Power supply:	DC 12V
Sample Type:	Fixed production
Support Network:	WCDMA Band II/ WCDMA Band V
Operation Frequency Band:	WCDMA Band II/ WCDMA Band V
Modulation Type:	QPSK
HSDPA UE Category:	14
HSUPA UE Category:	6
DC-HSDPA UE Category:	24
Designation of Emissions	WCDMA Band II:4M16F9W WCDMA Band V: 4M17F9W
Antenna Type:	PCB Antenna
Antenna Gain:	5dBi
Extreme temp. Tolerance:	-30°C to +50°C
Extreme vol. Limits:	9VDC to 16VDC (nominal: 12VDC)

4.2 Test Frequency

Test mode:	TX/RX	RF Channel		
		Low (L)	Middle (M)	High (H)
WCDMA Band V	TX	Channel 4132	Channel 4182	Channel 4233
		826.4MHz	836.4 MHz	846.6 MHz
	RX	Channel 4357	Channel 4407	Channel 4458
		871.4 MHz	881.4 MHz	891.6 MHz
Test mode:	TX/RX	RF Channel		
		Low (L)	Middle (M)	High (H)
WCDMA Band II	TX	Channel 9262	Channel 9400	Channel 9538
		1852.4 MHz	1880.0 MHz	1907.6 MHz
	RX	Channel 9662	Channel 9800	Channel 9938
		1932.4 MHz	1960.0 MHz	1987.6 MHz

4.3 Test Environment

Environment Parameter	Selected Values During Tests	
Relative Humidity	52%	
Atmospheric Pressure:	1015Pa	
Temperature:	TN	25 °C
Voltage:	VL	9 V
	VN	12 V
	VH	16 V

NOTE: VL= lower extreme test voltage
VN= nominal voltage
VH= upper extreme test voltage
TN= normal temperature

4.4 Cable

Cable	Length	Shielding	Core
Control Cable	177cm	Unshielded	Non-Core
RSS 232 Cable	143cm	Unshielded	Non-Core

4.5 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
DC power	ZHAOXIN	RXN-305D	REF. No.SEA2700

4.6 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	$\pm 7.25 \times 10^{-8}$
2	Duty cycle	$\pm 0.37\%$
3	Occupied Bandwidth	$\pm 3\%$
4	RF conducted power	$\pm 0.75\text{dB}$
5	RF power density	$\pm 2.84\text{dB}$
6	Conducted Spurious emissions	$\pm 0.75\text{dB}$
7	RF Radiated power	$\pm 4.5\text{dB}$ (below 1GHz)
		$\pm 4.8\text{dB}$ (above 1GHz)
8	Radiated Spurious emission test	$\pm 4.5\text{dB}$ (Below 1GHz)
		$\pm 4.8\text{dB}$ (Above 1GHz)
9	Temperature test	$\pm 1^\circ\text{C}$
10	Humidity test	$\pm 3\%$
11	Supply voltages	$\pm 1.5\%$
12	Time	$\pm 3\%$



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4.7 Test Location

All tests were performed at:

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No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053

Fax: +86 755 2671 0594

No tests were sub-contracted.

4.8 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.9 Deviation from Standards

None

4.10 Abnormalities from Standard Conditions

None



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5 Equipment List

RF test system					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date	Cal. Due date
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12
MXA Signal Analyzer(10Hz-26.5GHz)	KEYSIGHT	N9020A	SEM004-17	2020-05-21	2021-05-20
Signal Generator (9kHz-40GHz)	KEYSIGHT	N5173B	SEM006-05	2019-09-25	2020-09-24
				2020-09-23	2021-09-22
MXG Vector Signal Generator	KEYSIGHT	N5182A	SEM006-14	2020-03-23	2021-03-22
ESG Vector Signal Generator	KEYSIGHT	E4438C	SEM006-15	2019-09-25	2020-09-24
				2020-09-23	2021-09-22
DC Power Supply	Rohde & Schwarz	NGSM 32/10	SEM011-04	2020-03-24	2021-03-23
Manual Step Attenuator	KEYSIGHT	8494B	SEM021-05	2020-04-09	2021-04-08
Manual Step Attenuator	KEYSIGHT	8496B	SEM021-06	2020-04-09	2021-04-08
Power Sensor	KEYSIGHT	U2021XA	SEM009-20	2020-05-21	2021-05-20
Power Sensor	KEYSIGHT	U2021XA	SEM009-21	2020-05-21	2021-05-20
Programmable Temperature & Humidity Chamber	Votsch Industrietechnik GmbH	VT 4002	SEM002-15	2020-03-25	2021-03-24
Universal Radio Communication Tester	Rohde & Schwarz	CMW 500	SEM010-03	2020-04-01	2021-03-31
Measurement Software	TST	TST PASS V1.0.5	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-03	2020-07-10	2021-07-09

RE in Chamber					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date	Cal. Due date
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2020-07-19	2023-07-18
MXE EMI receiver(3Hz-3.6GHz)	KEYSIGHT	N9038A	SEM004-15	2019-12-16	2020-12-15
BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-02	2019-05-24	2022-05-23
Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2020-04-01	2021-03-31
Measurement	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A



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Software					
Coaxial Cable	SGS	N/A	SEM025-01	2020-07-10	2021-07-09
Universal Radio Communication Tester	Rohde & Schwarz	CMW 500	SEM010-03	2020-04-01	2021-03-31
Signal Generator (9kHz-40GHz)	KEYSIGHT	N5173B	SEM006-05	2019-09-25 2020-09-23	2020-09-24 2021-09-22
Trilog-Broadband Antenna(25MHz-2GHz)	Schwarzbeck	VULB9168	SEM003-18	2019-08-08	2022-08-07

RE in Chamber 2#

Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date	Cal. Due date
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2018-03-13	2021-03-12
EXA Signal Analyzer (10Hz-44GHz)	Agilent Technologies Inc	N9010A	SEM004-12	2020-04-09	2021-04-08
Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2018-04-13	2021-04-12
Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEM003-06	2018-06-08	2021-06-07
Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2019-09-25 2020-09-23	2020-09-24 2021-09-22
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2020-07-10	2021-07-09
Universal Radio Communication Tester	Rohde & Schwarz	CMW 500	SEM010-03	2020-04-01	2021-03-31
Signal Generator (9kHz-40GHz)	KEYSIGHT	N5173B	SEM006-05	2019-09-25 2020-09-23	2020-09-24 2021-09-22



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General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-03	2019-09-26	2020-09-25
				2020-09-24	2021-09-23
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2019-09-26	2020-09-25
				2020-09-24	2021-09-23
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2019-09-26	2020-09-25
				2020-09-24	2021-09-23
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2020-04-07	2021-04-06



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6 Radio Spectrum Matter Test Results

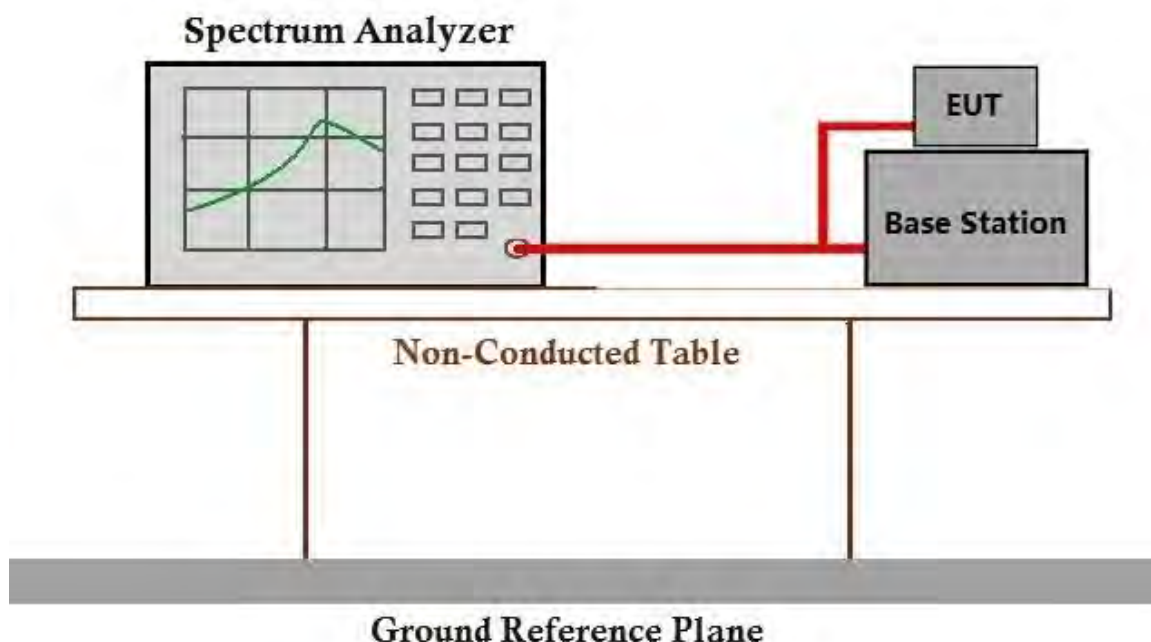
6.1 Effective (Isotropic) Radiated Power Output Data

Test Requirement: §2.1046, §22.913, §24.232
Test Method: ANSI C63.26, KDB 971168 D01 v03
Limit: ERP≤7W(WCDMA BAND V)
EIRP≤ 2W(WCDMA BAND II)

6.1.1 E.U.T. Operation

Operating Environment:
Temperature: 21.5 °C Humidity: 37.1 % RH Atmospheric Pressure: 1010 mbar
Test mode: 05: Tx mode, Keep the EUT in transmitting mode.

6.1.2 Test Setup Diagram



6.1.3 Measurement Data

The detailed test data see: Appendix FCC data.

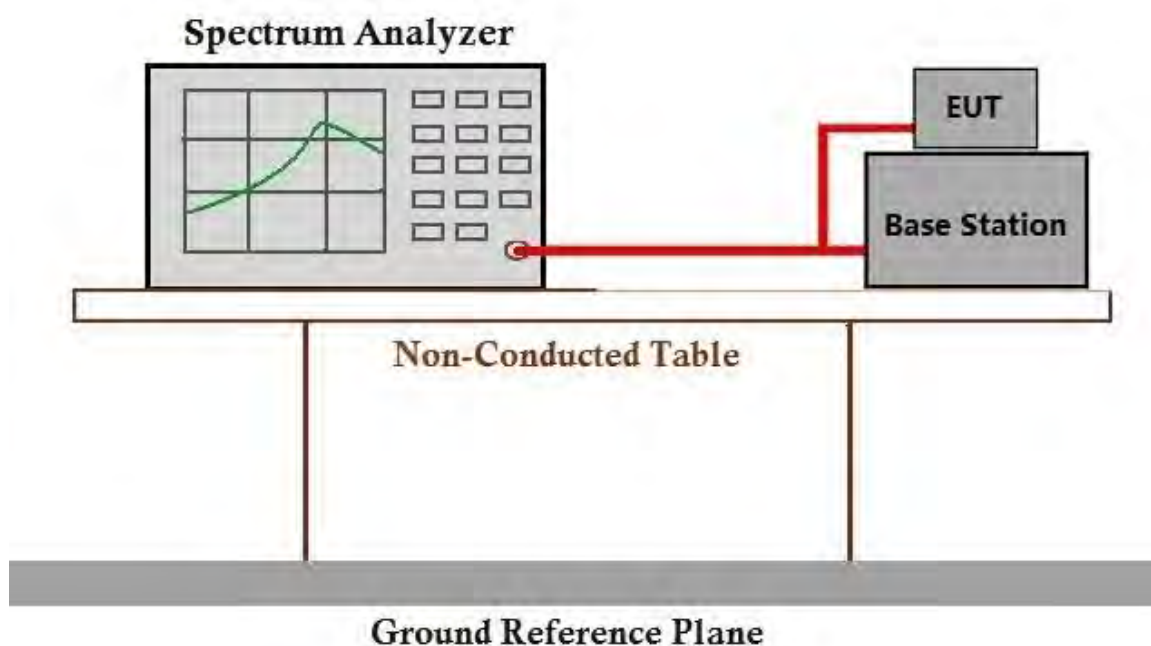
6.2 Peak-Average Ratio

Test Requirement: §24.232
 Test Method: ANSI C63.26, KDB 971168 D01 v03
 Limit: ≤13dB

6.2.1 E.U.T. Operation

Operating Environment:
 Temperature: 21.5 °C Humidity: 37.1 % RH Atmospheric Pressure: 1010 mbar
 Test mode: 05: Tx mode, Keep the EUT in transmitting mode.

6.2.2 Test Setup Diagram



6.2.3 Measurement Data

The detailed test data see: Appendix FCC data.

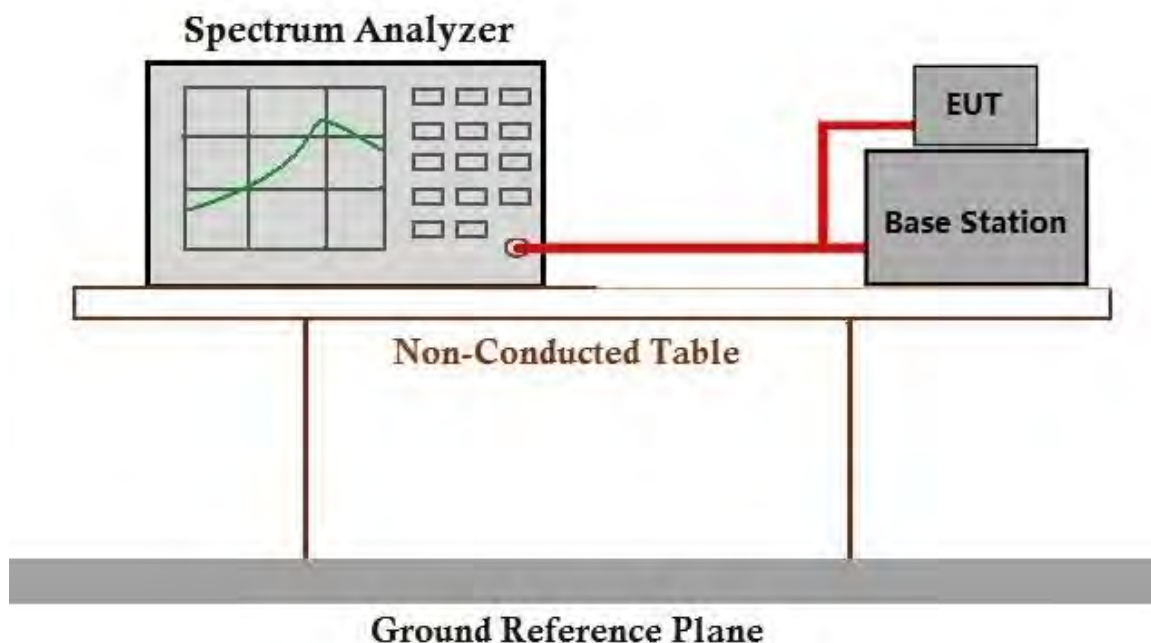
6.3 Bandwidth

Test Requirement: §2.1049(h), §22.917, §24.238
 Test Method: ANSI C63.26, KDB 971168 D01 v03
 Limit: OBW: No limit
 EBW: No limit

6.3.1 E.U.T. Operation

Operating Environment:
 Temperature: 21.5 °C Humidity: 37.1 % RH Atmospheric Pressure: 1010 mbar
 Test mode: 05: Tx mode, Keep the EUT in transmitting mode.

6.3.2 Test Setup Diagram



6.3.3 Measurement Data

The detailed test data see: Appendix FCC data.

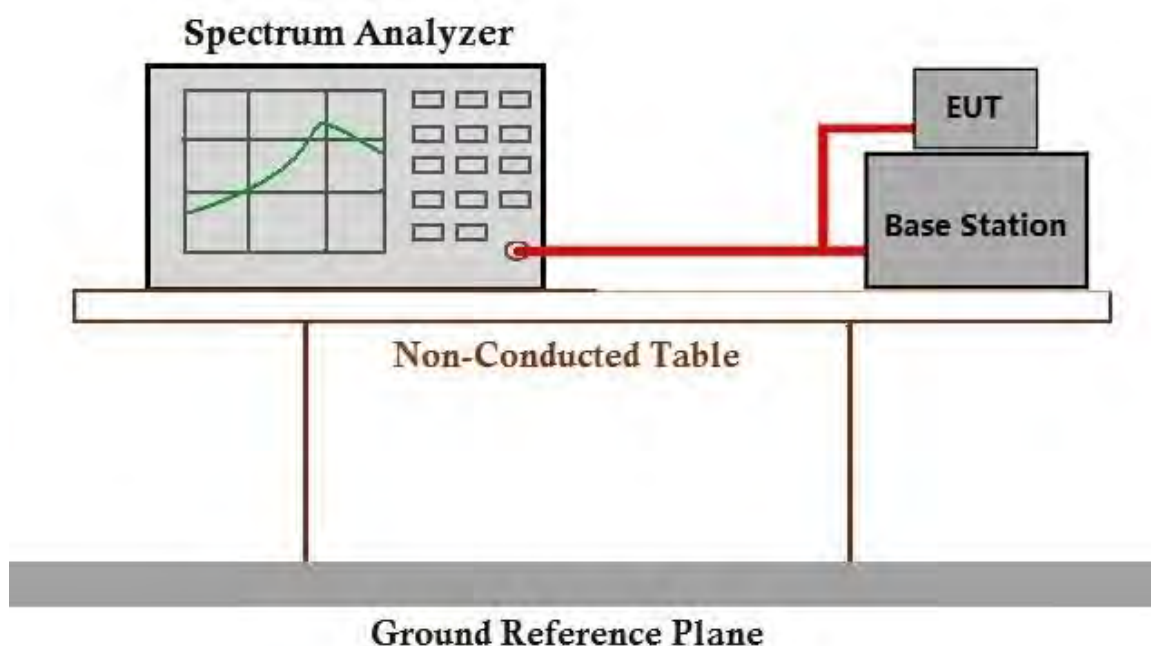
6.4 Band Edge Compliance

Test Requirement: §2.1051, §22.917, §24.238
Test Method: ANSI C63.26, KDB 971168 D01 v03
Limit: $\leq -13\text{dBm}/1\% \cdot \text{EBW}$, in 1 MHz bands immediately outside and adjacent to the frequency block.

6.4.1 E.U.T. Operation

Operating Environment:
Temperature: 21.5 °C Humidity: 37.1 % RH Atmospheric Pressure: 1010 mbar
Test mode: 05: Tx mode, Keep the EUT in transmitting mode.

6.4.2 Test Setup Diagram



6.4.3 Measurement Data

The detailed test data see: Appendix FCC data.

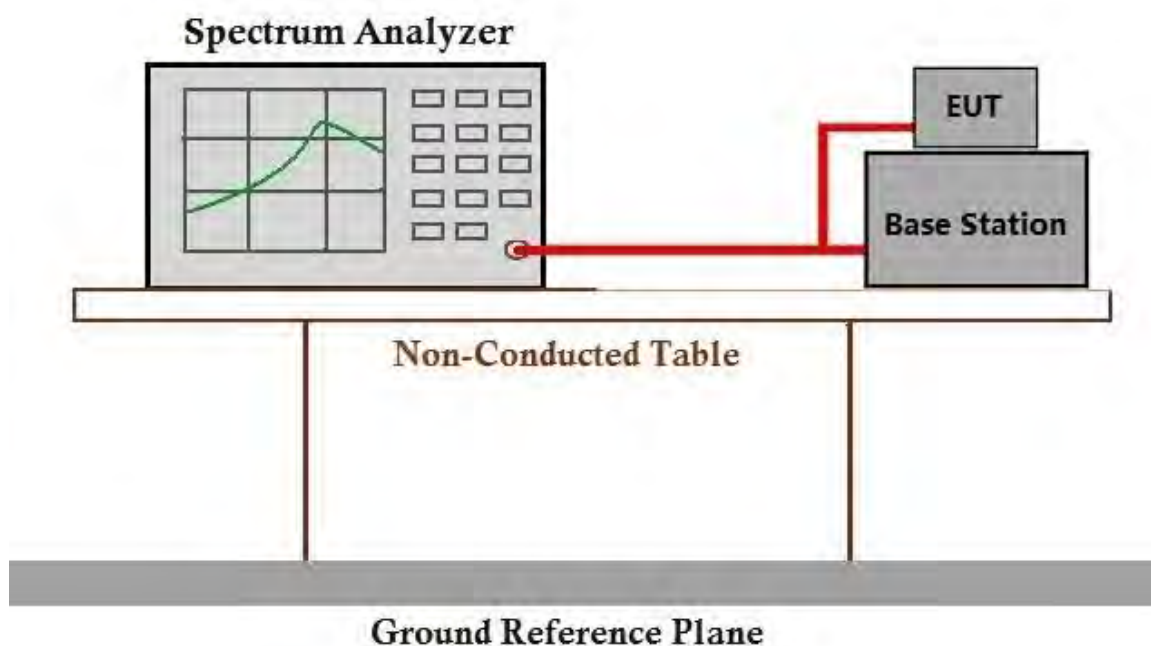
6.5 Spurious emissions at antenna terminals

Test Requirement: §2.1051, §22.917, §24.238
 Test Method: ANSI C63.26, KDB 971168 D01 v03
 Limit: $\leq -13\text{dBm}$

6.5.1 E.U.T. Operation

Operating Environment:
 Temperature: 21.5 °C Humidity: 37.1 % RH Atmospheric Pressure: 1010 mbar
 Test mode: 05: Tx mode, Keep the EUT in transmitting mode.

6.5.2 Test Setup Diagram



6.5.3 Measurement Data

The detailed test data see: Appendix FCC data.

6.6 Field strength of spurious radiation

Test Requirement: §2.1051, §22.917, §24.238,
 Test Method: ANSI C63.26, KDB 971168 D01 v03
 Limit: $\leq -13\text{dBm}$

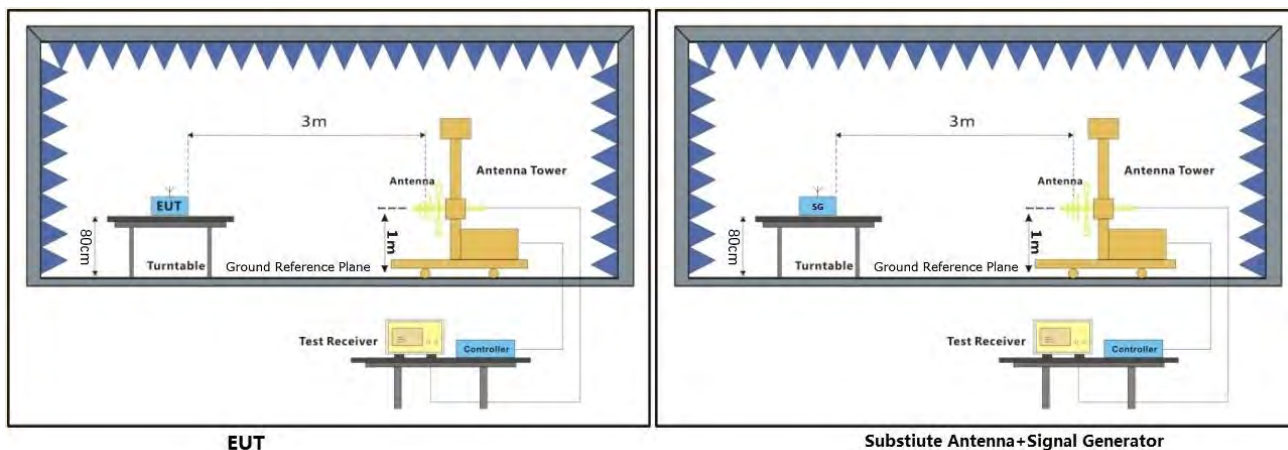
6.6.1 E.U.T. Operation

Operating Environment:

Temperature: 21.5 °C Humidity: 37.1 % RH Atmospheric Pressure: 1010 mbar

Test mode: 05: Tx mode, Keep the EUT in transmitting mode.

6.6.2 Test Setup Diagram



6.6.3 Measurement Procedure and Data

Test Procedure:

- (1) On a test site, the EUT shall be placed on a turntable and in the position closest to the normal use as declared by the user.
- (2) The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the transmitter.
- (3) The output of the antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.
- (4) The transmitter shall be switched on; if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.
- (5) The test antenna shall be raised and lowered through the specified range of height until the measuring receiver detects a maximum signal level.
- (6) The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- (7) The test antenna shall be raised and lowered again through the specified range of height until the measuring receiver detects a maximum signal level.
- (8) The maximum signal level detected by the measuring receiver shall be noted.
- (9) The measurement shall be repeated with the test antenna set to horizontal polarization.
- (10) Replace the antenna with a proper Antenna (substitution antenna).
- (11) The substitution antenna shall be oriented for vertical polarization and, if necessary, the length of the substitution antenna shall be adjusted to correspond to the frequency of transmitting.
- (12) The substitution antenna shall be connected to a calibrated signal generator.
- (13) If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- (14) The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.
- (15) The input signal to substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.
- (16) The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
- (17) The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.



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WCDMA Band V-Low channel								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
1652.8	-56.71	0.52	6	-53.38	-13	-40.38	Horizontal	Pass
2479.2	-55.65	0.53	5.8	-52.53	-13	-39.53	Horizontal	Pass
3305.6	-58.67	0.65	6.2	-55.27	-13	-42.27	Horizontal	Pass
1652.8	-54.73	0.52	6	-51.4	-13	-38.4	Vertical	Pass
2479.2	-56.28	0.53	5.8	-53.16	-13	-40.16	Vertical	Pass
3305.6	-58.63	0.65	6.2	-55.23	-13	-42.23	Vertical	Pass

WCDMA Band V-Middle channel								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
1672.8	-56.58	0.52	6	-53.25	-13	-40.25	Horizontal	Pass
2509.2	-56.13	0.59	5.3	-53.57	-13	-40.57	Horizontal	Pass
3345.6	-58.62	0.65	6.2	-55.22	-13	-42.22	Horizontal	Pass
1672.8	-52.35	0.52	6	-49.02	-13	-36.02	Vertical	Pass
2509.2	-54.53	0.59	5.3	-51.97	-13	-38.97	Vertical	Pass
3345.6	-56.92	0.65	6.2	-53.52	-13	-40.52	Vertical	Pass

WCDMA Band V-High channel								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
1693.2	-52.22	0.52	6	-48.89	-13	-35.89	Horizontal	Pass
2539.8	-55.92	0.59	5.3	-53.36	-13	-40.36	Horizontal	Pass
3386.4	-58.49	0.65	6.2	-55.09	-13	-42.09	Horizontal	Pass
1693.2	-49.46	0.52	6	-46.13	-13	-33.13	Vertical	Pass
2539.8	-53.67	0.59	5.3	-51.11	-13	-38.11	Vertical	Pass
3386.4	-58.39	0.65	6.2	-54.99	-13	-41.99	Vertical	Pass



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WCDMA Band II-Low channel								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
3704.8	-52.21	0.71	7.6	-45.32	-13	-32.32	Horizontal	Pass
5557.2	-54.47	0.85	10.3	-45.02	-13	-32.02	Horizontal	Pass
7409.6	-62	1	12.9	-50.1	-13	-37.1	Horizontal	Pass
3704.8	-51.07	0.71	7.6	-44.18	-13	-31.18	Vertical	Pass
5557.2	-54.38	0.85	10.3	-44.93	-13	-31.93	Vertical	Pass
7409.6	-60.04	1	12.9	-48.14	-13	-35.14	Vertical	Pass

WCDMA Band II-Middle channel								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
3760	-51.59	0.71	7.6	-44.7	-13	-31.7	Horizontal	Pass
5640	-54.18	0.85	10.3	-44.73	-13	-31.73	Horizontal	Pass
7520	-61.18	0.99	13.2	-48.97	-13	-35.97	Horizontal	Pass
3760	-50.54	0.71	7.6	-43.65	-13	-30.65	Vertical	Pass
5640	-53.99	0.85	10.3	-44.54	-13	-31.54	Vertical	Pass
7520	-60.69	0.99	13.2	-48.48	-13	-35.48	Vertical	Pass

WCDMA Band II-High channel								
Frequency (MHz)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	Polarization (H/V)	Result
3815.2	-50.59	0.71	7.6	-43.7	-13	-30.7	Horizontal	Pass
5722.8	-53.93	0.85	10.3	-44.48	-13	-31.48	Horizontal	Pass
7630.4	-58.98	0.99	13.2	-46.77	-13	-33.77	Horizontal	Pass
3815.2	-49.79	0.71	7.6	-42.9	-13	-29.9	Vertical	Pass
5722.8	-52.62	0.85	10.3	-43.17	-13	-30.17	Vertical	Pass
7630.4	-59.91	0.99	13.2	-47.7	-13	-34.7	Vertical	Pass

Note: All modes have been tested and we found HSDPA mode has the worst test result. Only record the worst test result.



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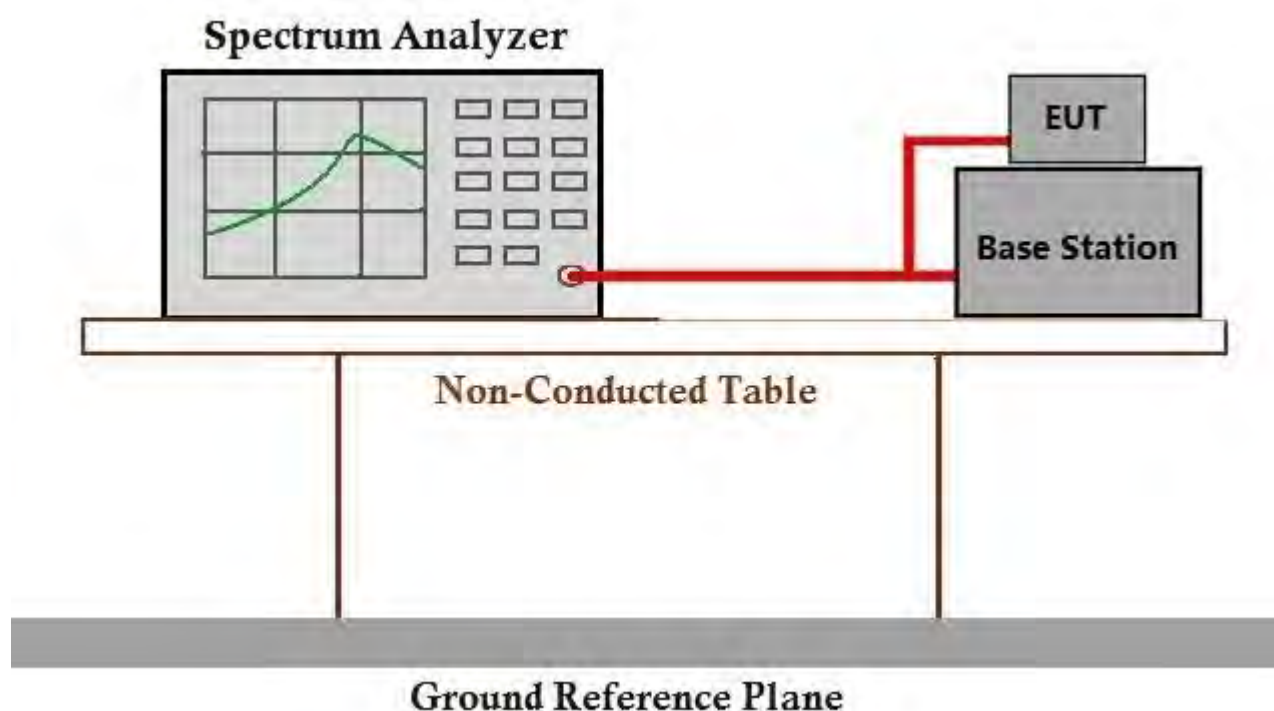
6.7 Frequency stability

Test Requirement: §2.1055, §22.355, §24.235
 Test Method: ANSI C63.26, KDB 971168 D01 v03
 Limit: $\leq \pm 2.5\text{ppm}$.

6.7.1 E.U.T. Operation

Operating Environment:
 Temperature: 21.5 °C Humidity: 37.1 % RH Atmospheric Pressure: 1010 mbar
 Test mode: 05: Tx mode, Keep the EUT in transmitting mode.

6.7.2 Test Setup Diagram



6.7.3 Measurement Data

The detailed test data see: Appendix FCC data.

Note: All modes have been tested and we found HSDPA Test mode has the worst test result. Only record the worst test result.

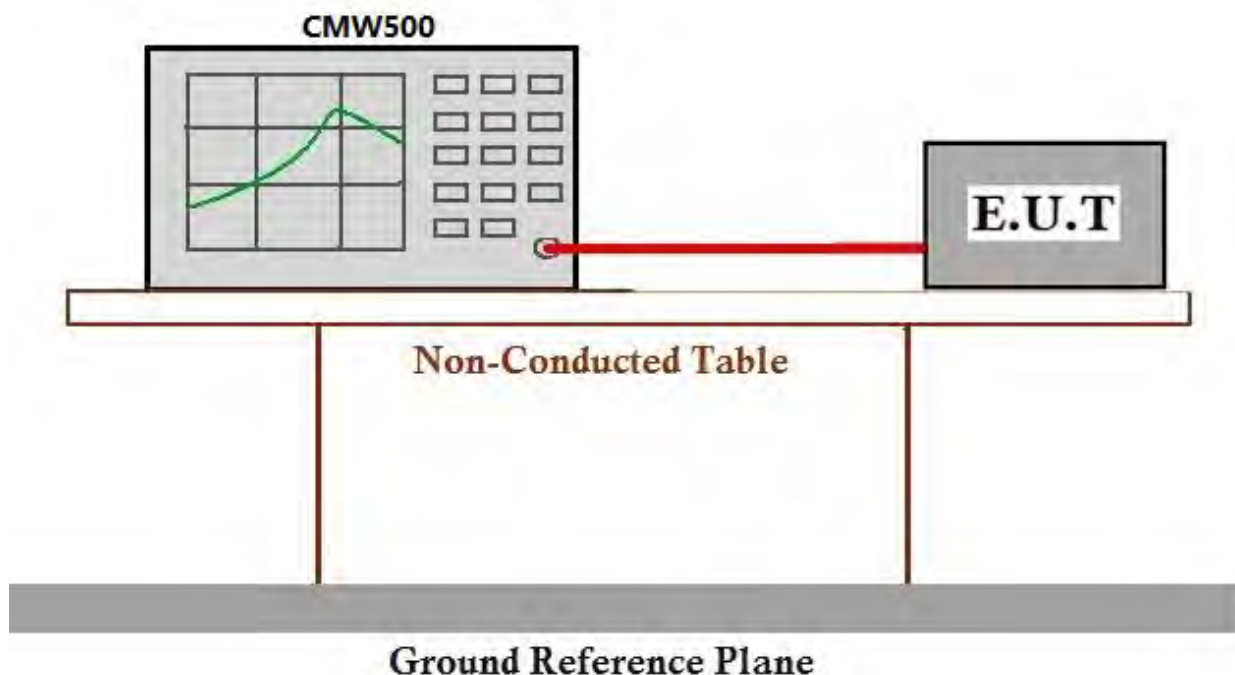
6.8 Modulation Characteristics

Test Requirement: §2.1047
Test Method: ANSI C63.26, KDB 971168 D01 v03
Limit: Digital modulation

6.8.1 E.U.T. Operation

Operating Environment:
Temperature: 21.5 °C Humidity: 37.1 % RH Atmospheric Pressure: 1010 mbar
Test mode: 05: Tx mode, Keep the EUT in transmitting mode.

6.8.2 Test Setup Diagram



6.8.3 Measurement Data

The detailed test data see: Appendix FCC data.



7 Photographs

7.1 Test Setup

Please refer to setup photos.

7.2 EUT Constructional Details (EUT Photos)

Please Refer to external and internal photos for details.



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8 Appendix

8.1 Appendix FCC data for WCDMA Band2.

1. Effective (Isotropic) Radiated Power Output Data

1.1 Test Result

Test Band: 2											
Test Mode		Conducted Power (dBm)			Antenna gain		EIRP(dBm)			Limit (dBm)	Verdict
		LCH	MCH	HCH	(dBd)	(dBi)	LCH	MCH	HCH		
HSUPA	Subtest 1	20.57	20.43	20.24	/	5.00	25.57	25.43	25.24	33.01	PASS
	Subtest 2	20.13	20.43	20.47	/	5.00	25.13	25.43	25.47	33.01	PASS
	Subtest 3	20.40	19.93	20.02	/	5.00	25.4	24.93	25.02	33.01	PASS
	Subtest 4	20.36	20.42	20.25	/	5.00	25.36	25.42	25.25	33.01	PASS
	Subtest 5	20.09	19.97	20.30	/	5.00	25.09	24.97	25.3	33.01	PASS
HSDPA	Subtest 1	19.52	20.24	20.28	/	5.00	24.52	25.24	25.28	33.01	PASS
	Subtest 2	19.30	20.41	20.46	/	5.00	24.3	25.41	25.46	33.01	PASS
	Subtest 3	19.52	20.42	20.01	/	5.00	24.52	25.42	25.01	33.01	PASS
	Subtest 4	19.35	20.41	20.47	/	5.00	24.35	25.41	25.47	33.01	PASS
RMC	12.2kbps RMC	23.08	22.89	22.98	/	5.00	28.08	27.89	27.98	33.01	PASS

Note:

- 1) dBd= dBi-2.15
- 2) ERP= Conducted output power+Antenna gain (dBd)
- 3) EIRP= Conducted output power+Antenna gain (dBi)

2. Peak-Average Ratio

2.1 Test Result

Test Band: 2					
Test Mode	Test result (dB)			Limit (dB)	Verdict
	LCH	MCH	HCH		
HSUPA	3.32	3.35	3.35	13	PASS
HSDPA	3.31	3.34	3.34	13	PASS
RMC	2.46	2.50	2.48	13	PASS

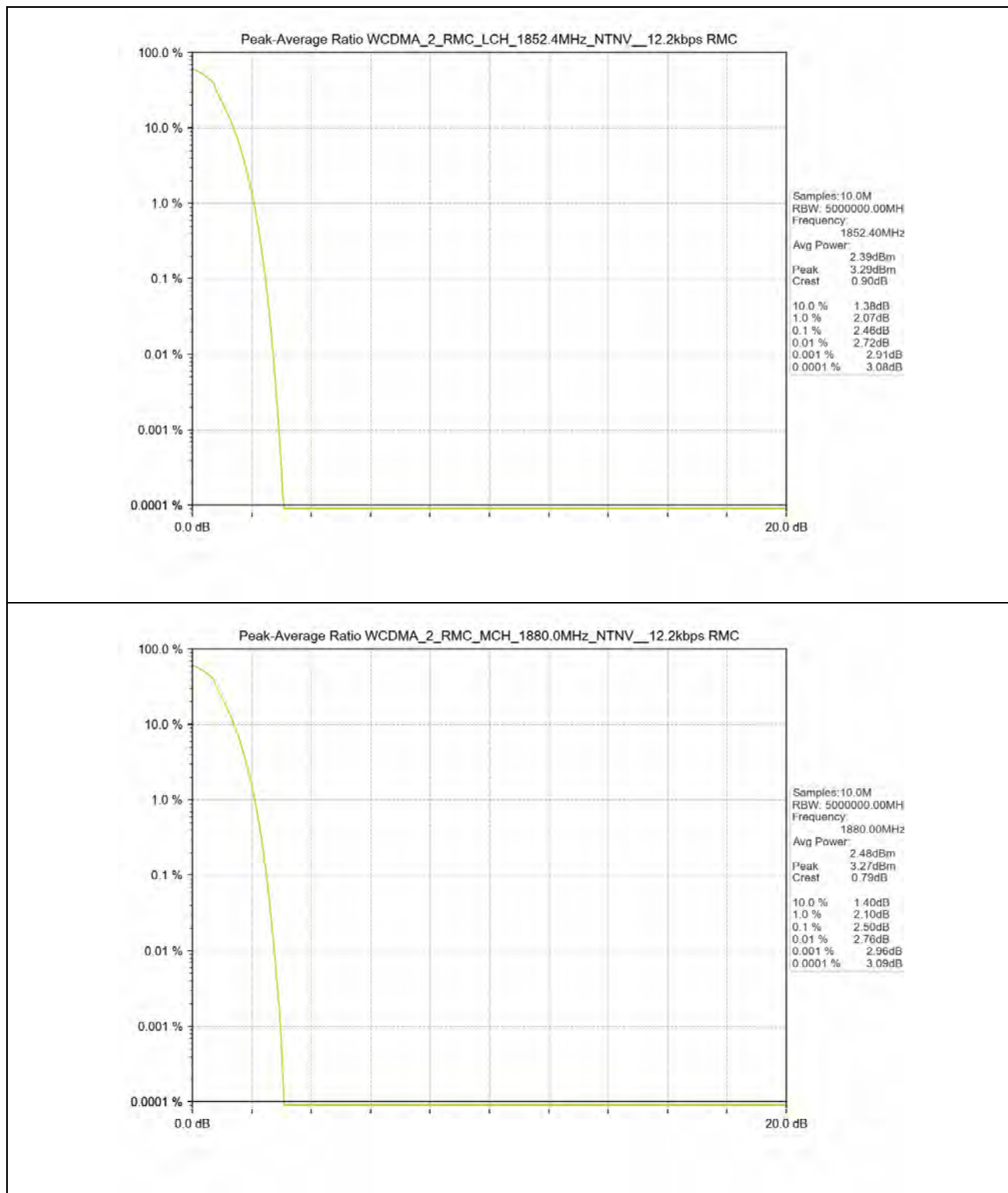
Note: All modes have been tested and we found HSDPA mode has the worst test result. Only record the worst test result.

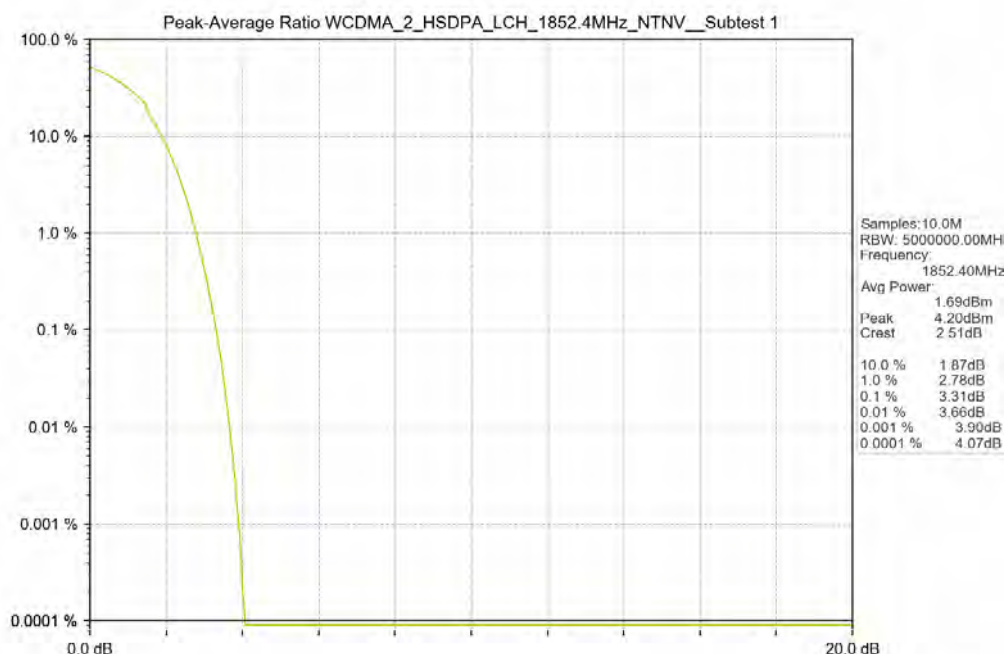
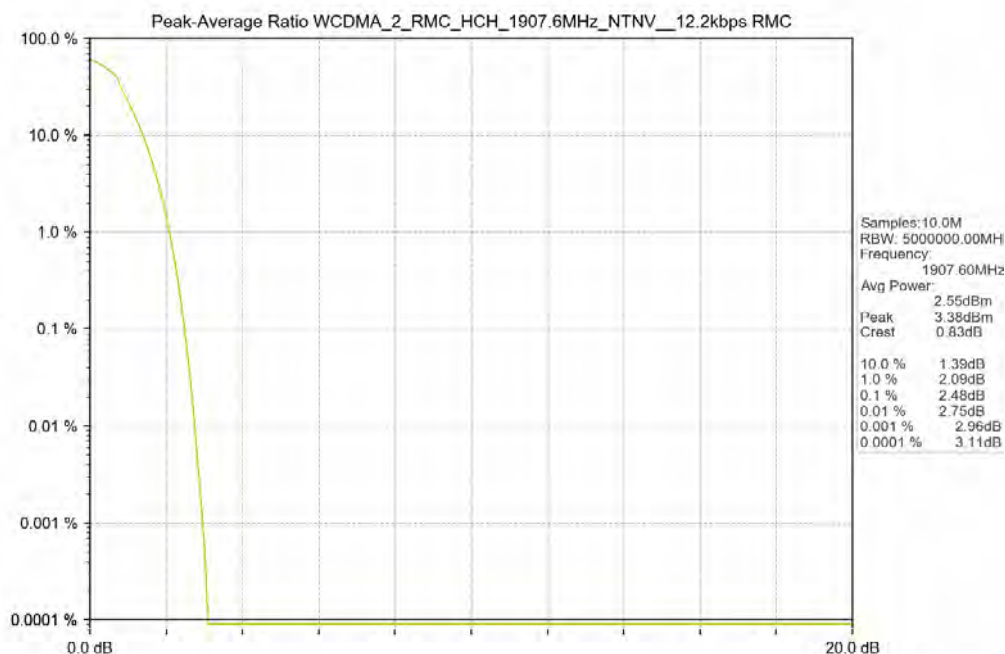
2.2 Test Graph

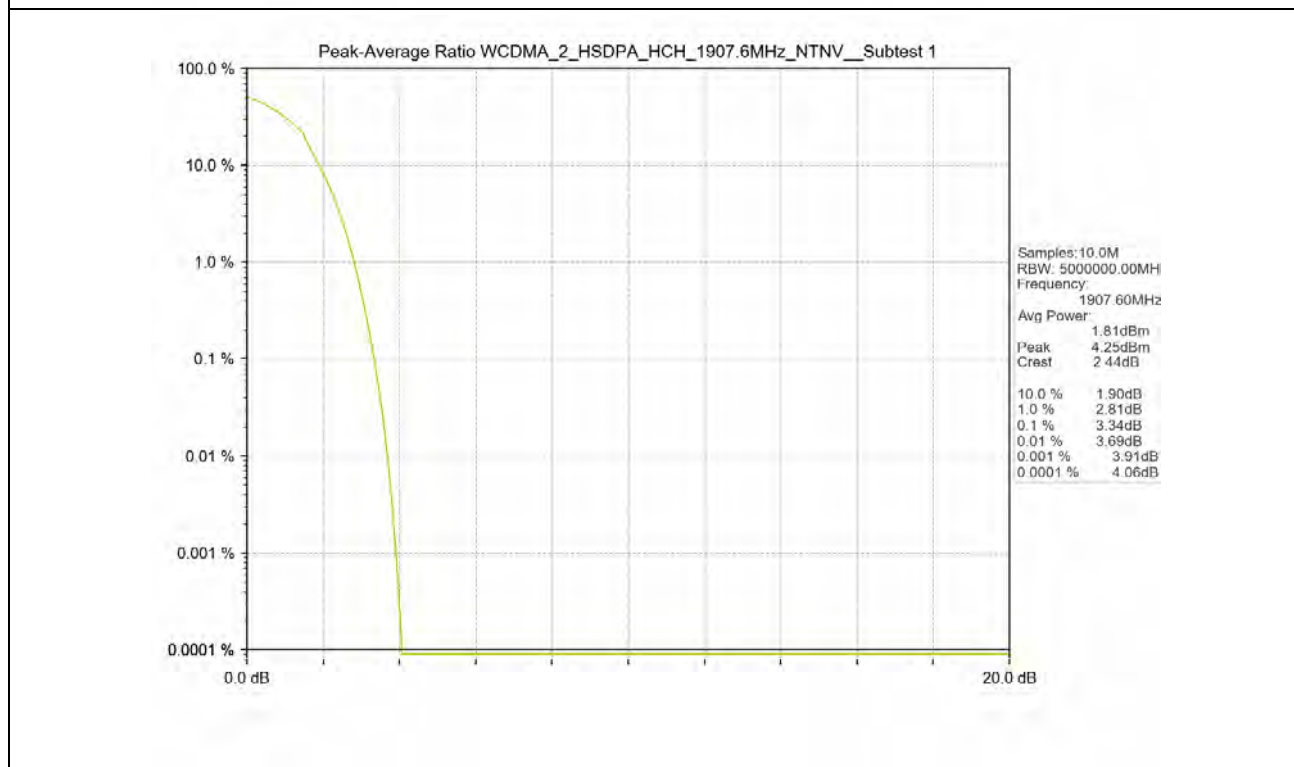
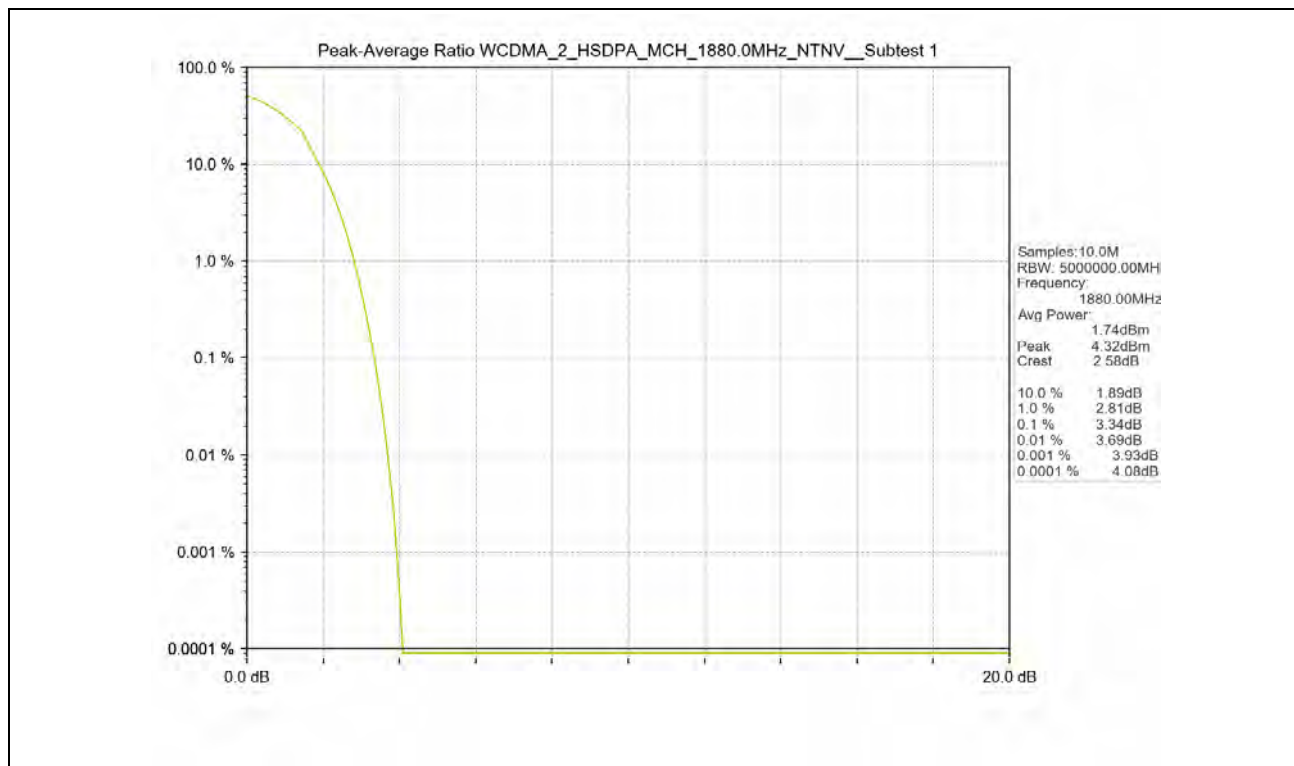


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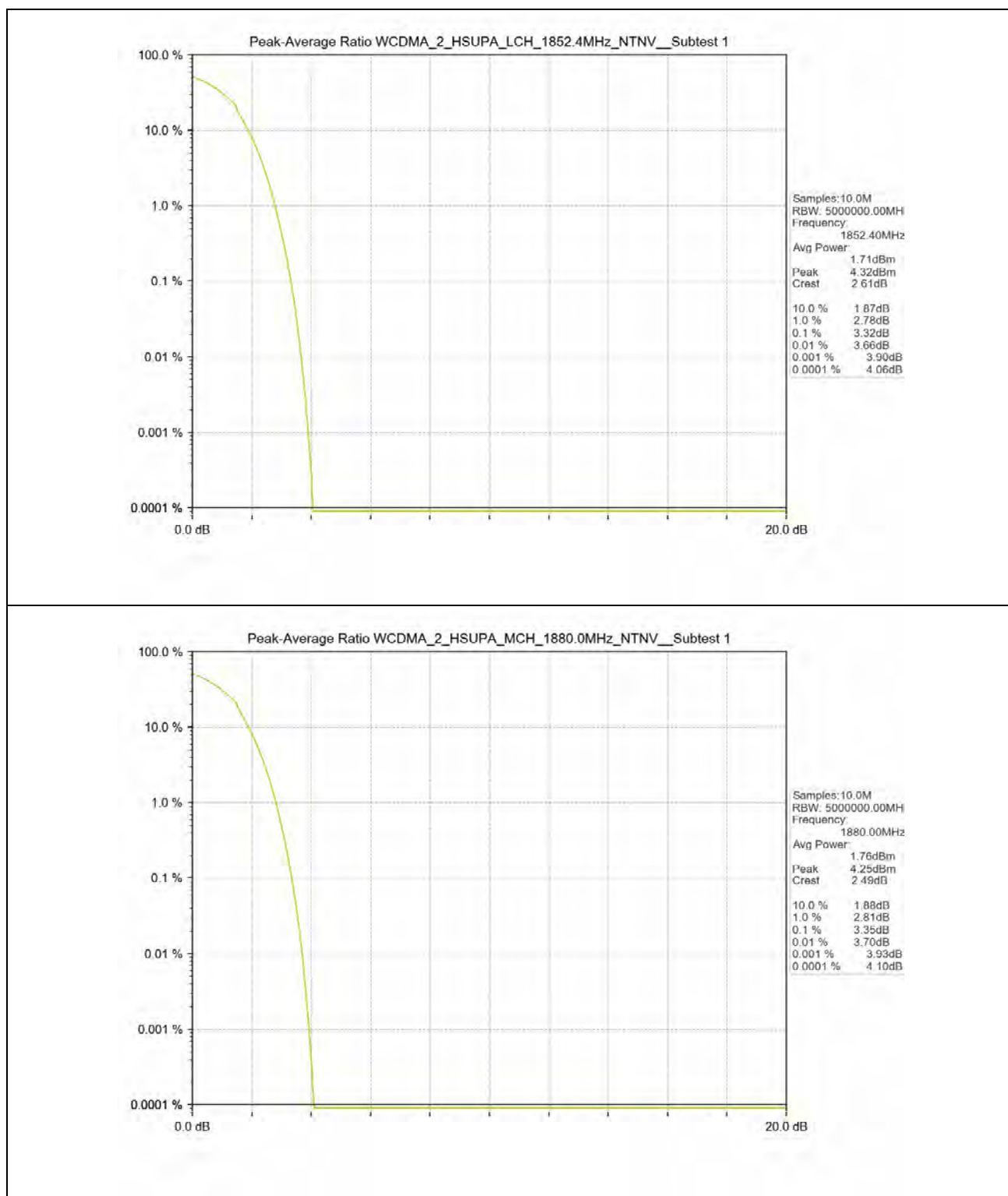


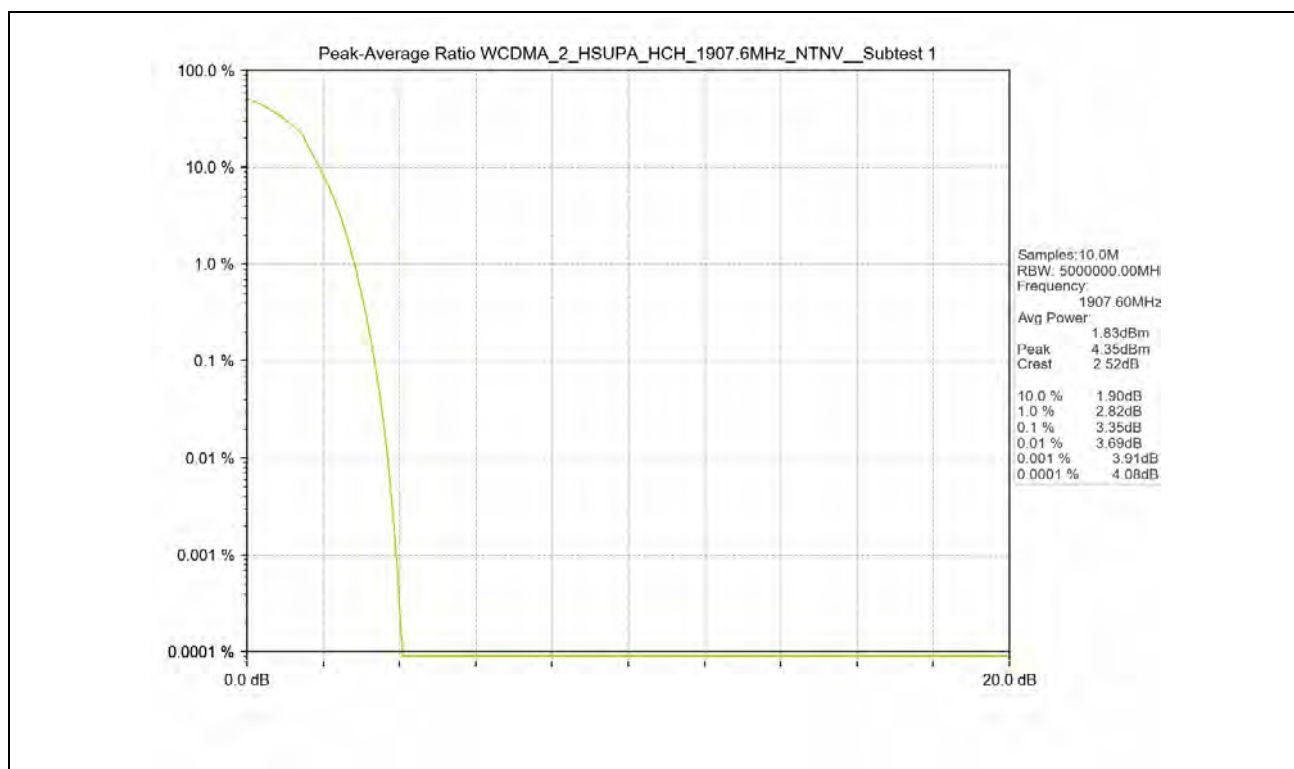
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3. 99% & 26dB Bandwidth

3.1 Test Result

Test Band: 2					
Test Mode	99% Occupied Bandwidth (MHz)			Limit	Verdict
	LCH	MCH	HCH		
HSUPA	4.150	4.180	4.130	N/A	PASS
HSDPA	4.150	4.160	4.140	N/A	PASS
RMC	4.090	4.100	4.070	N/A	PASS

3.2 Test Graph

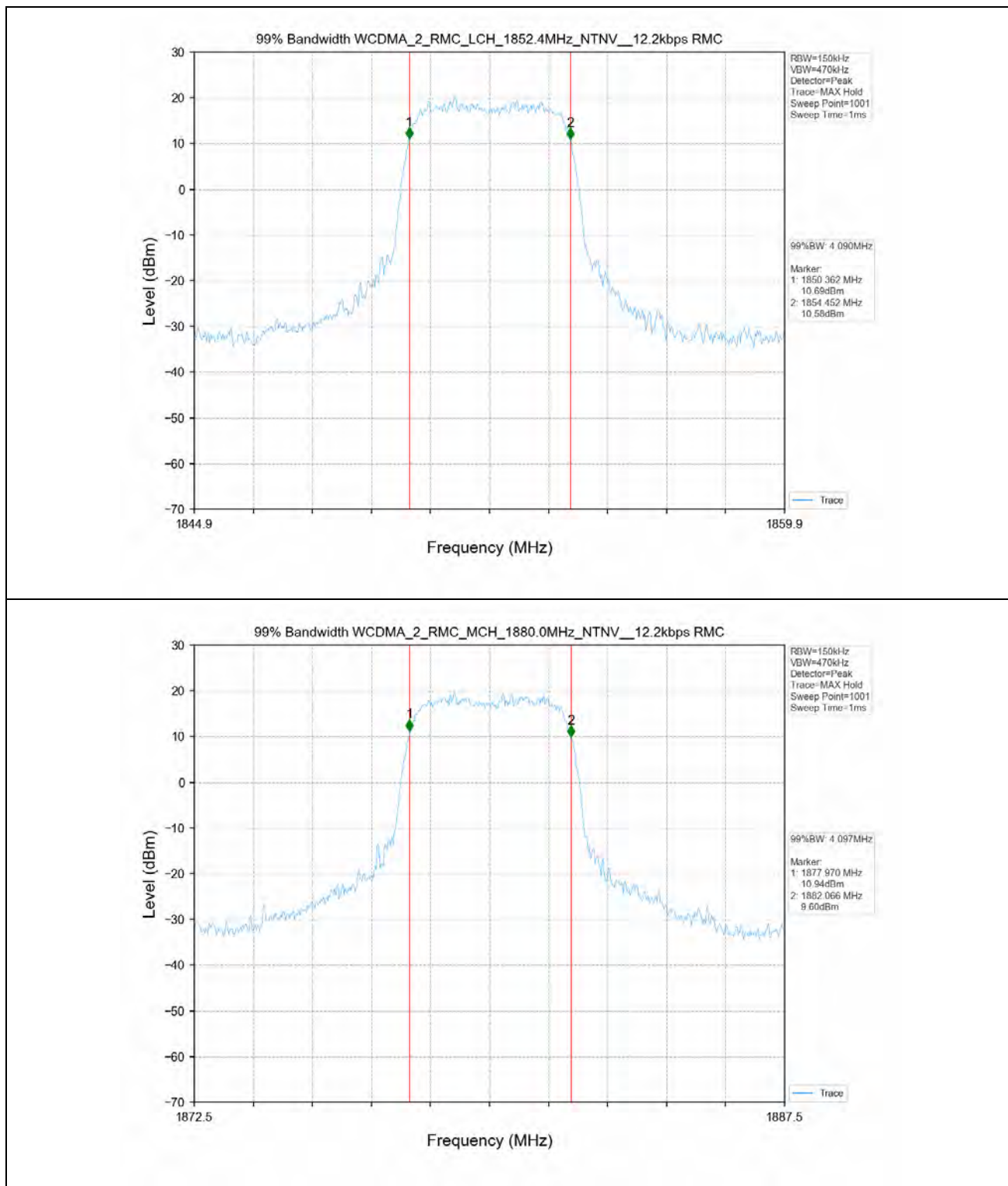


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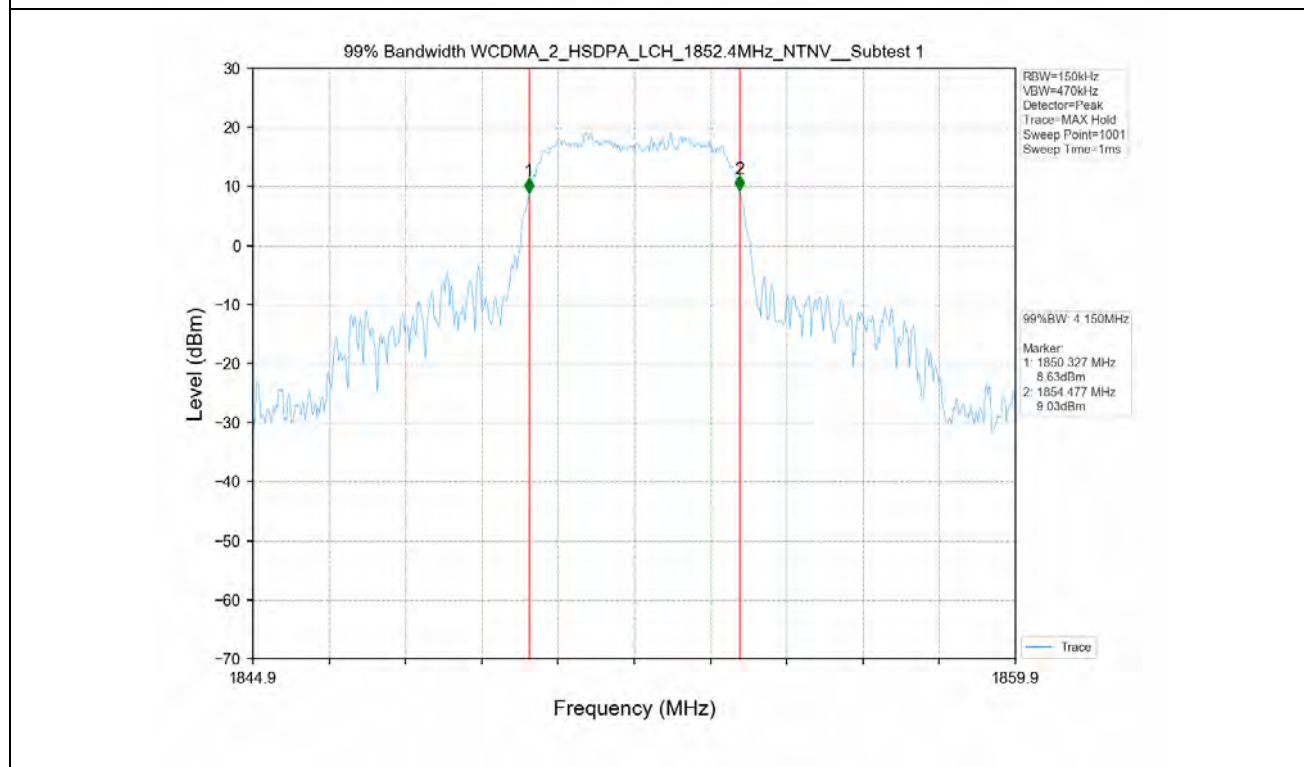
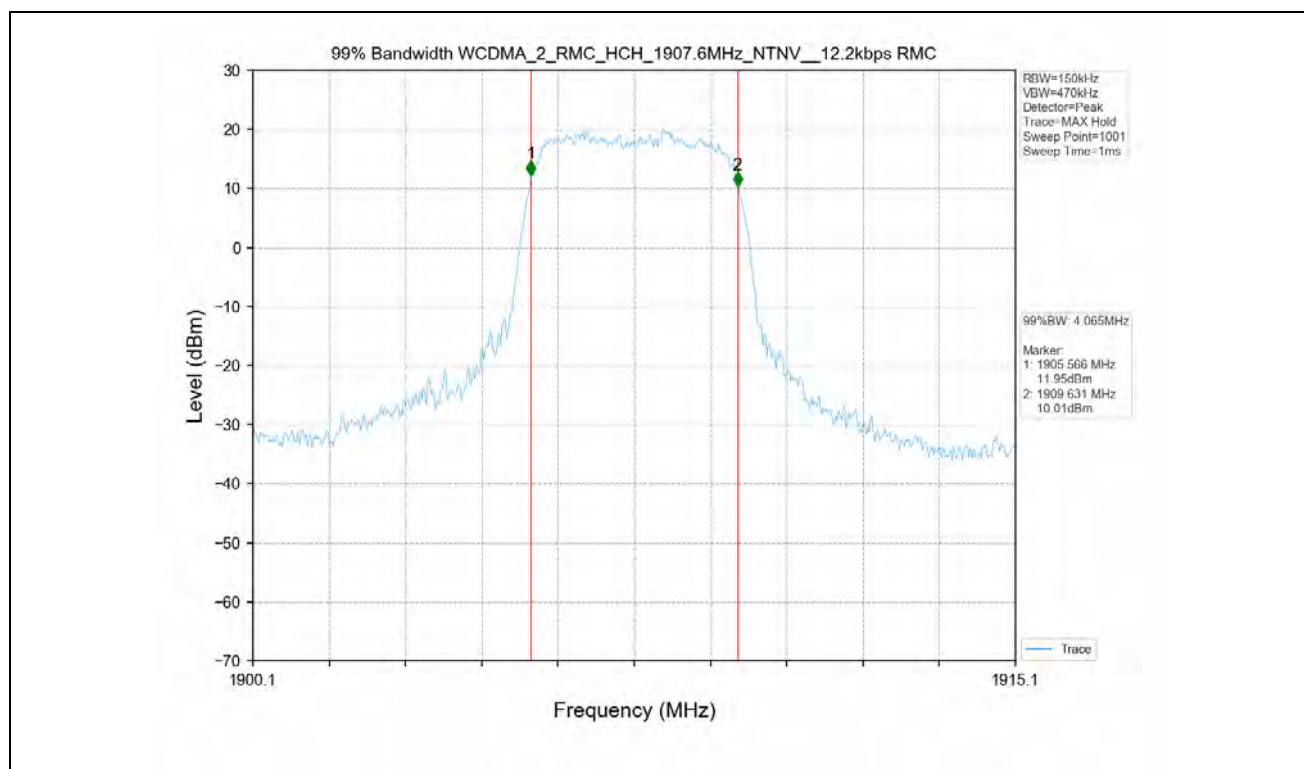


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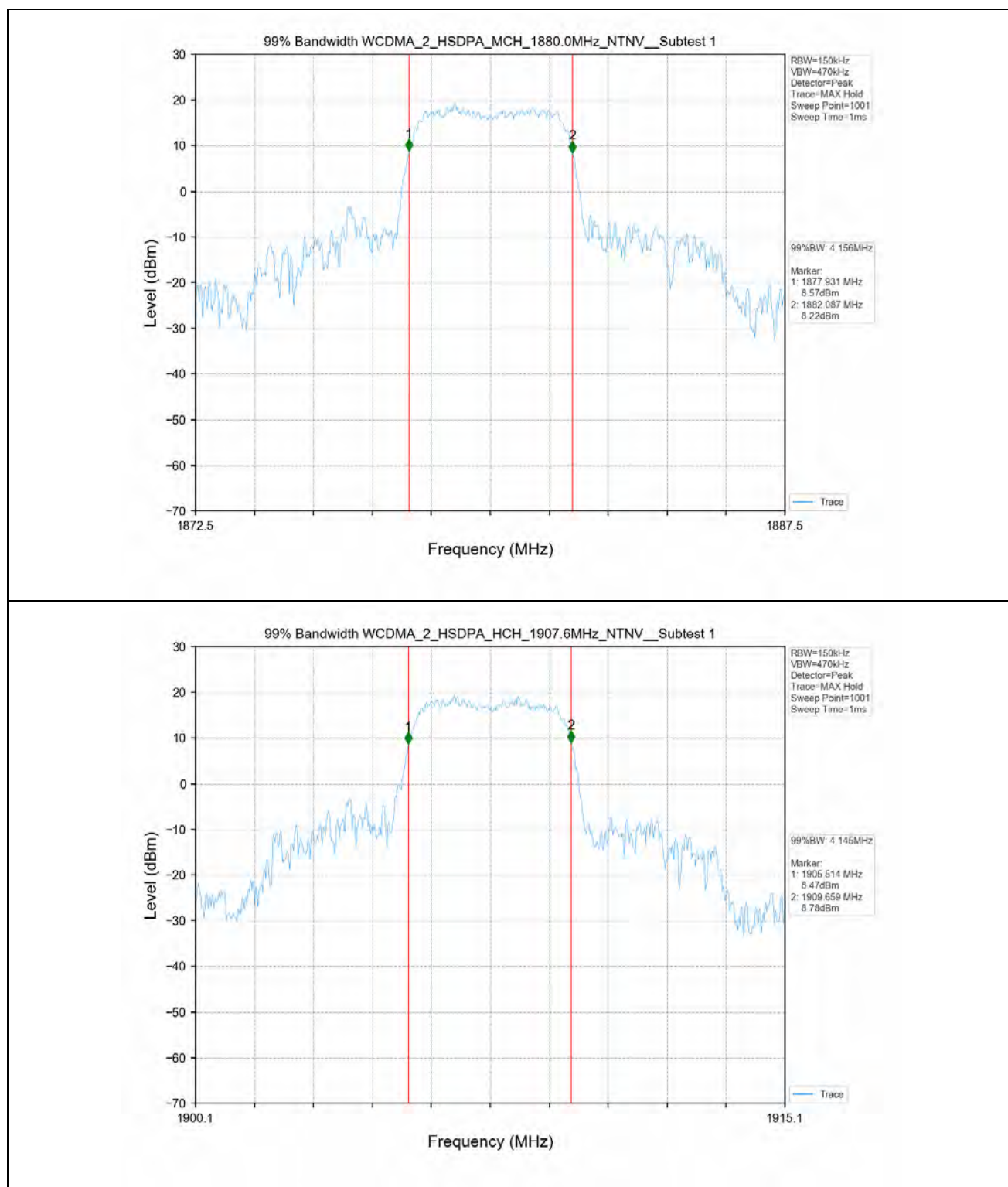


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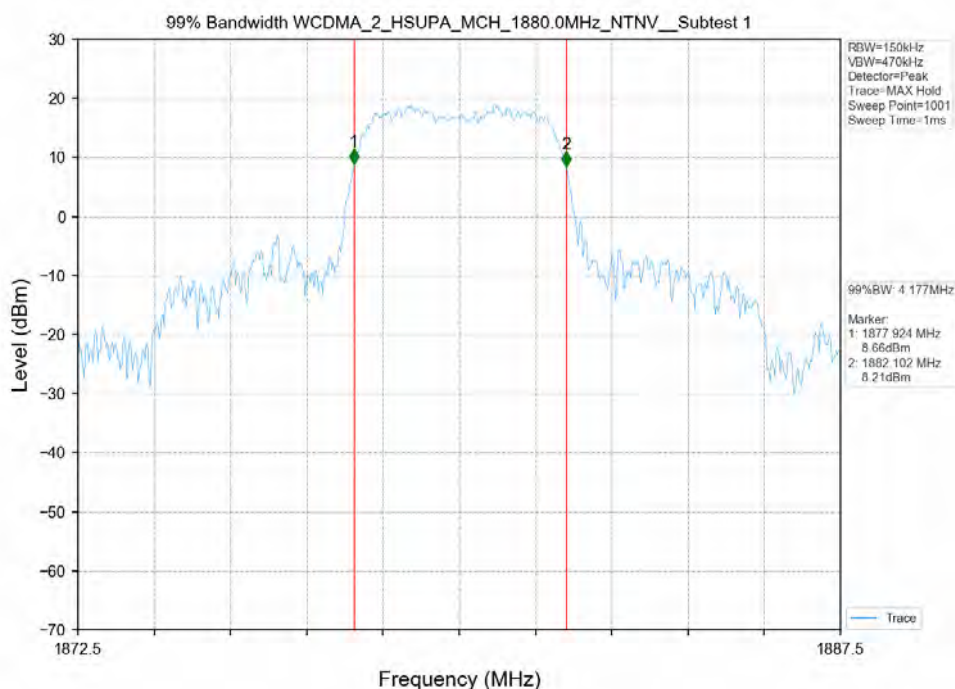
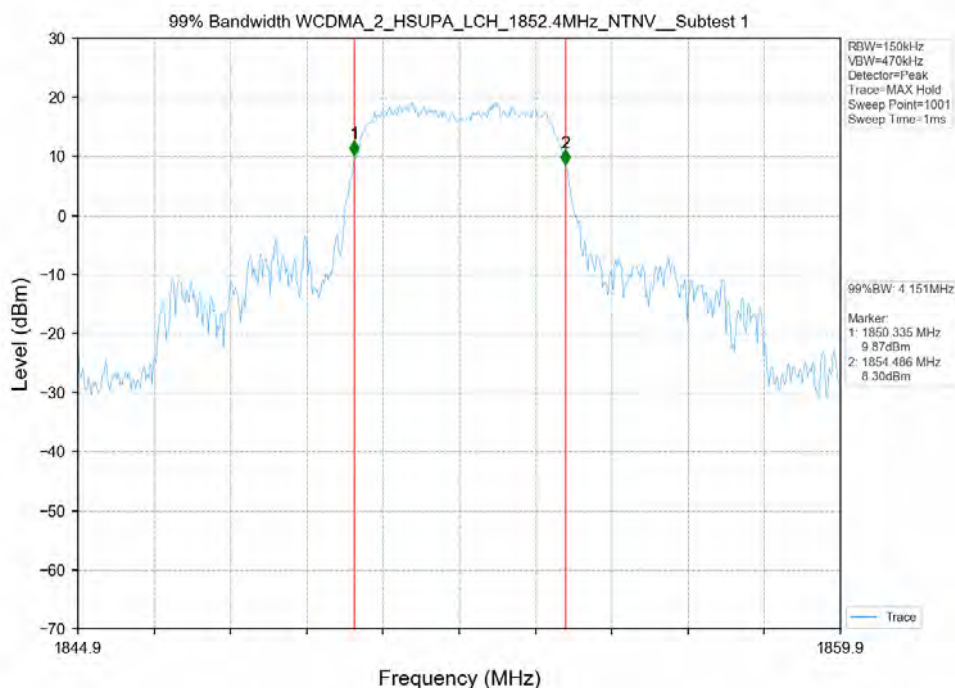


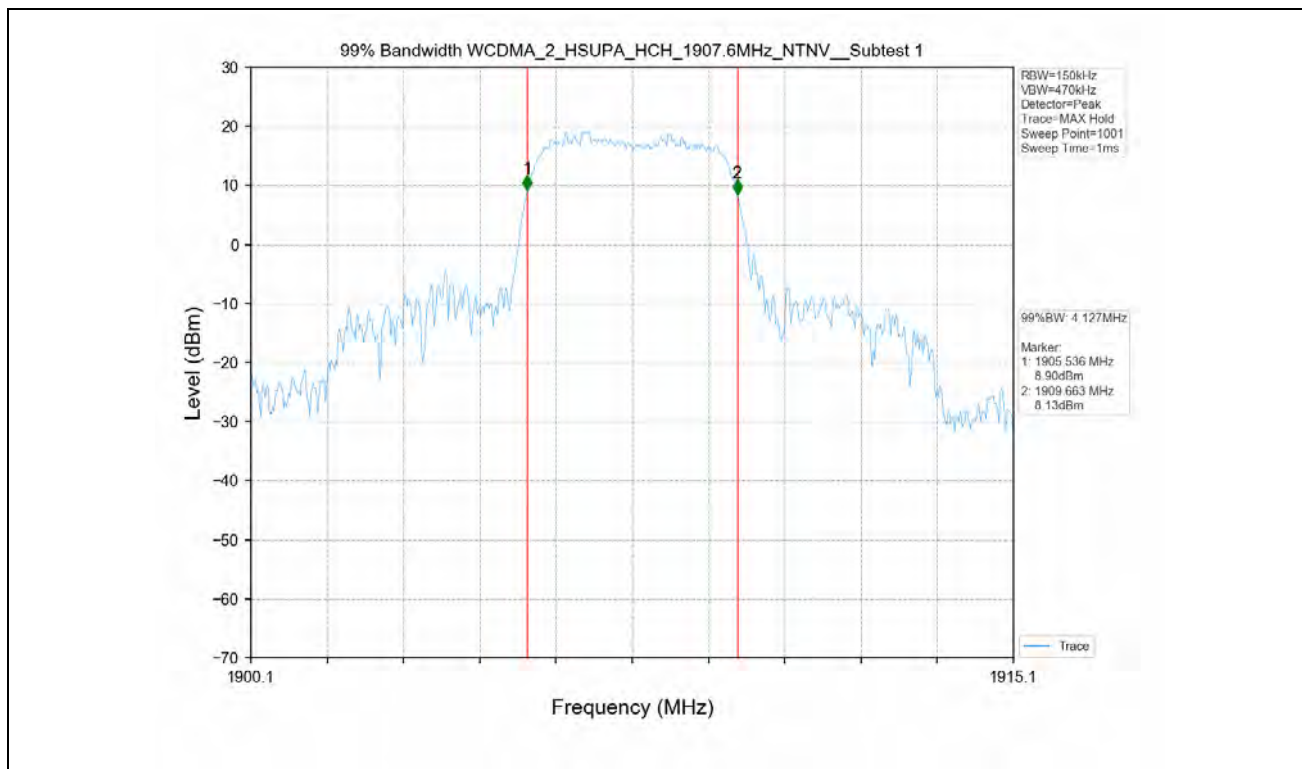
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Test Band: 2					
Test Mode	26dB Bandwidth (MHz)			Limit	Verdict
	LCH	MCH	HCH		
HSUPA	6.830	7.690	6.270	N/A	PASS
HSDPA	6.500	6.310	6.500	N/A	PASS
RMC	4.670	4.700	4.690	N/A	PASS

3.3 Test Graph

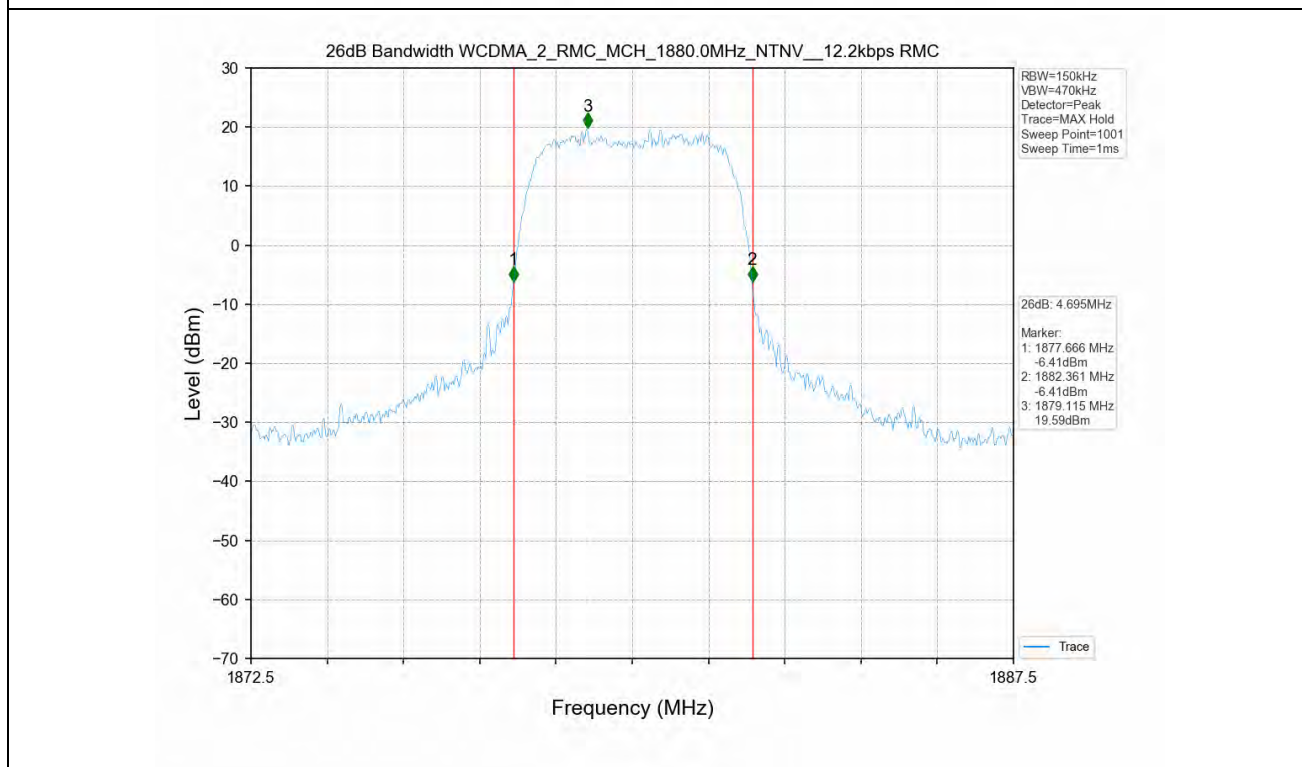
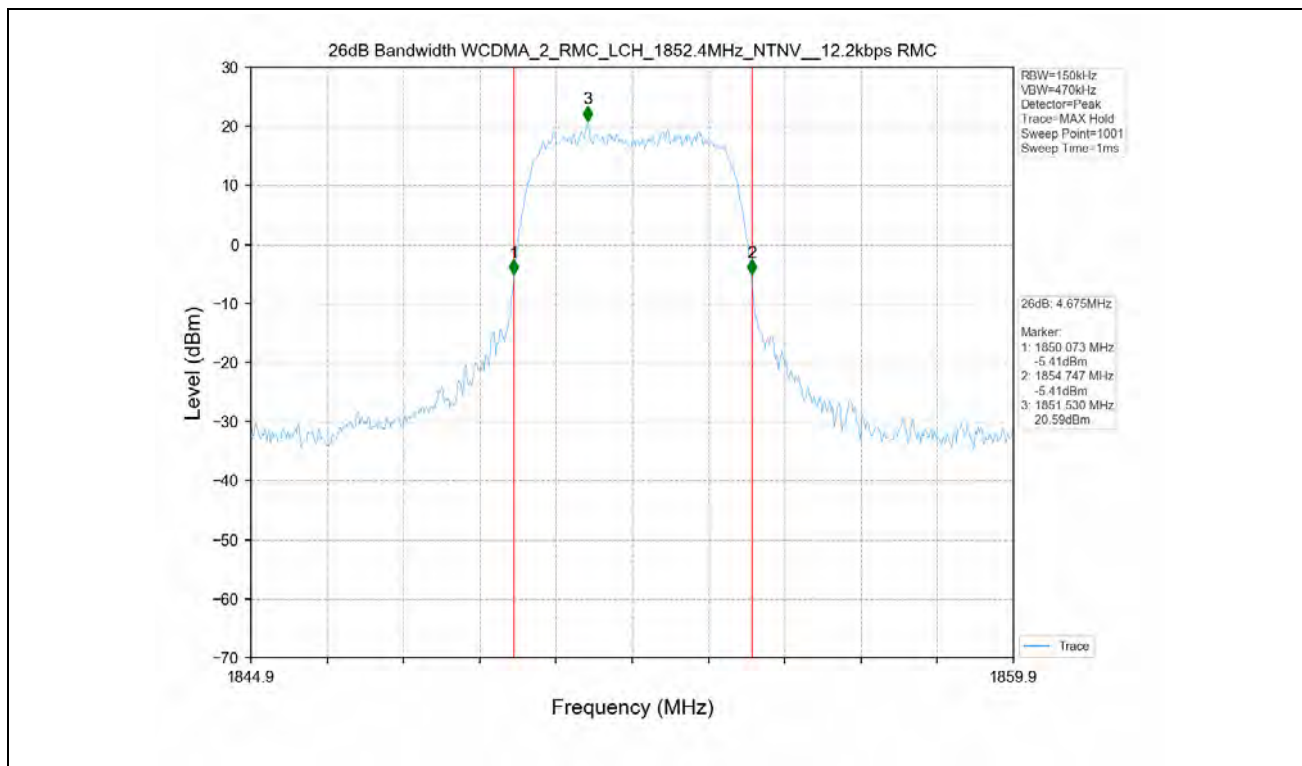


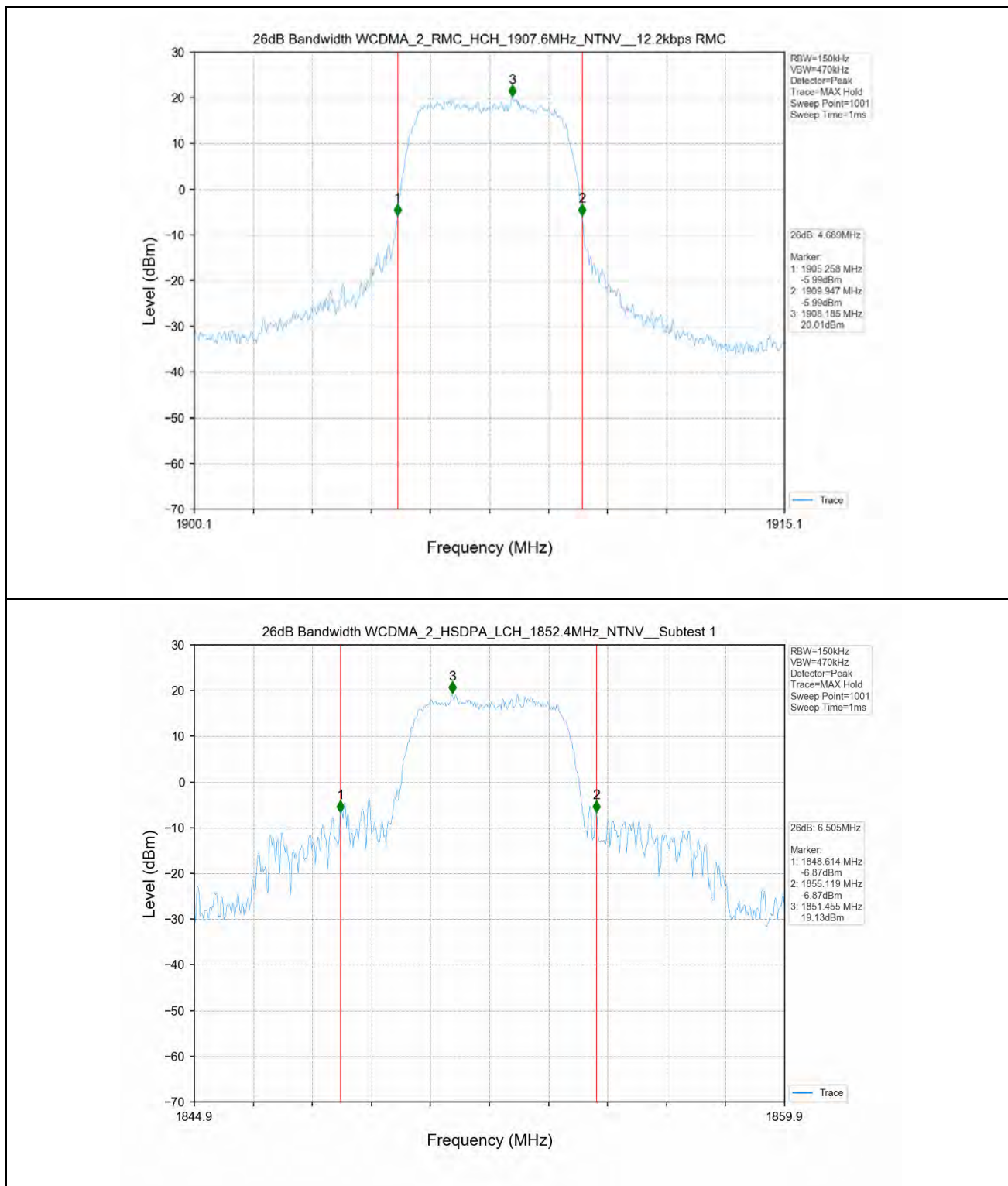
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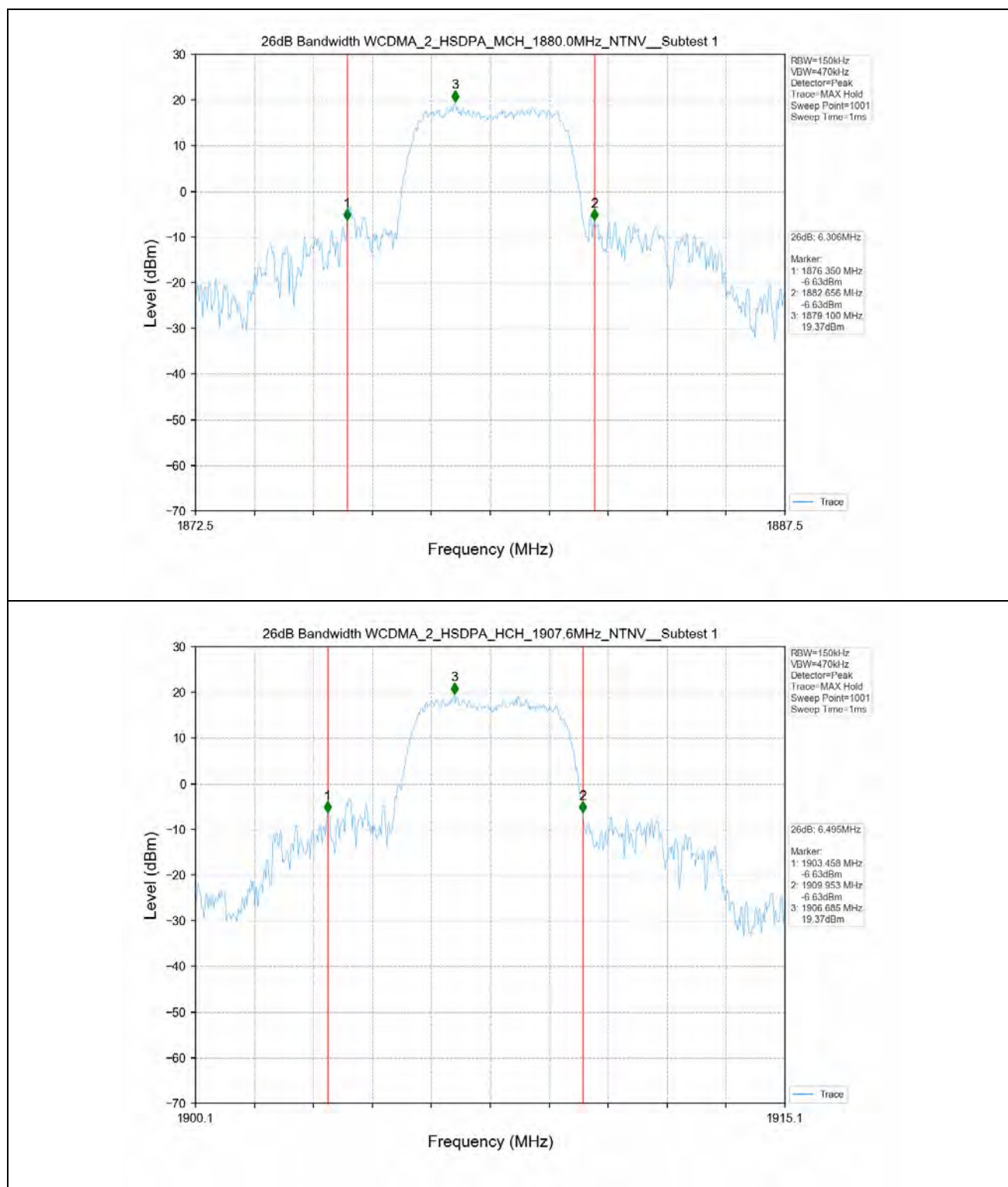
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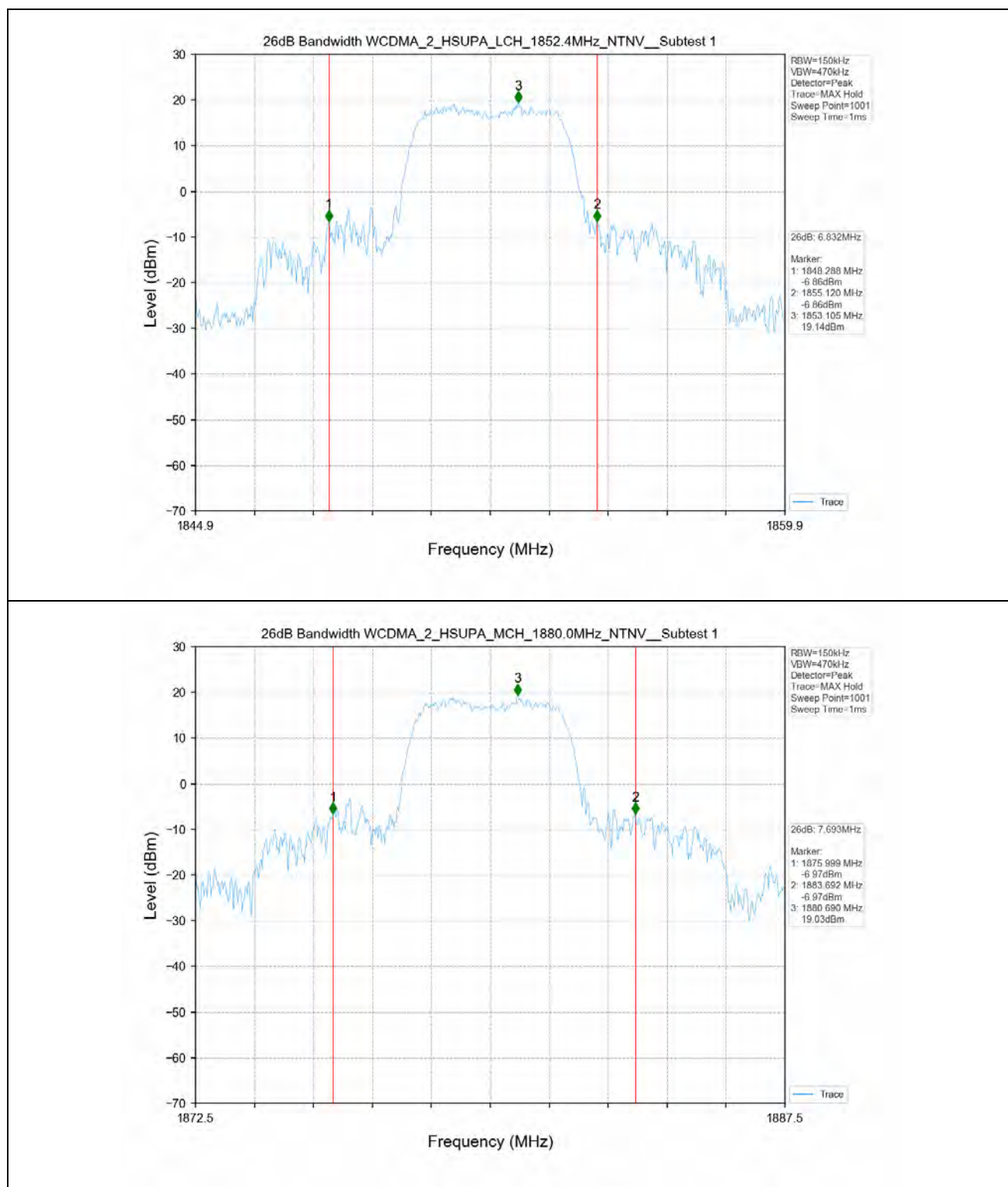
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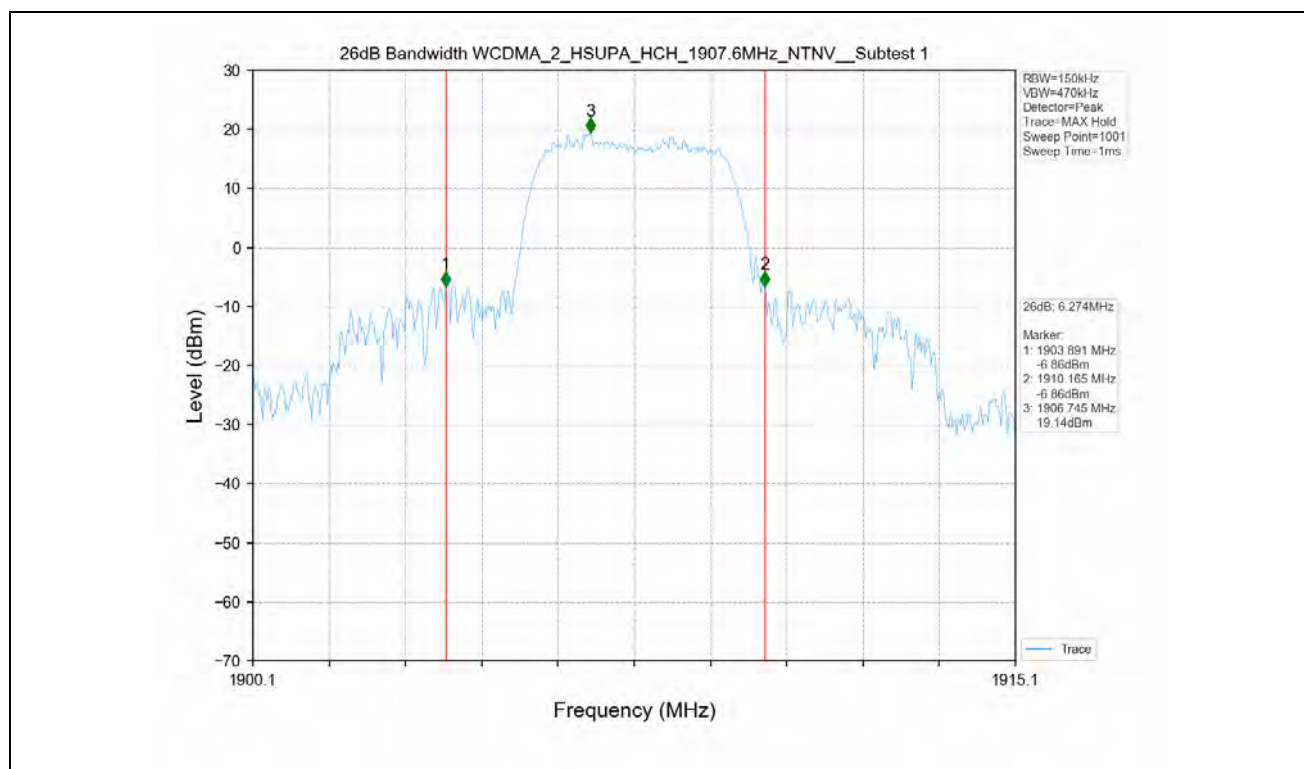
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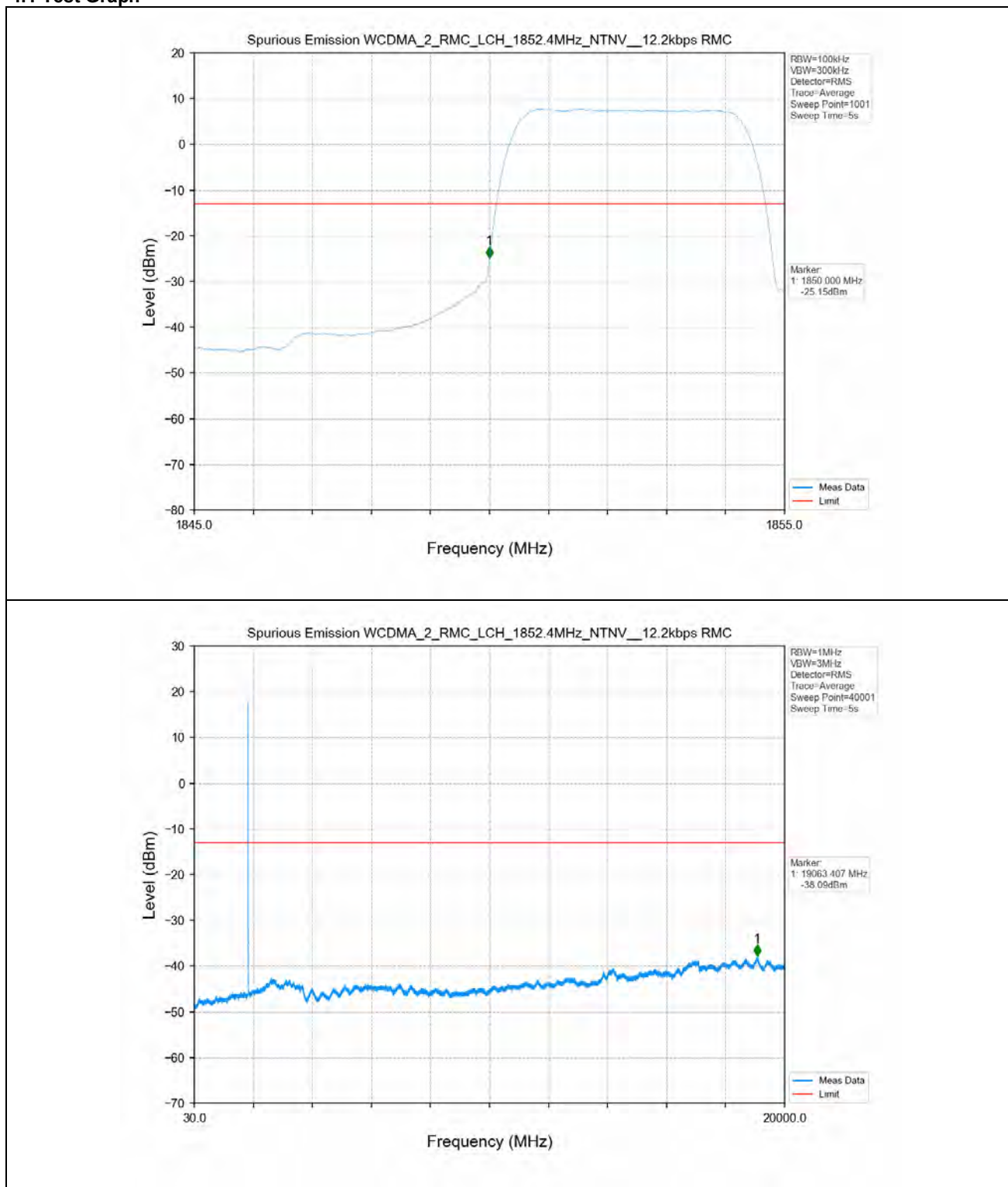
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4. Spurious Emission

4.1 Test Graph

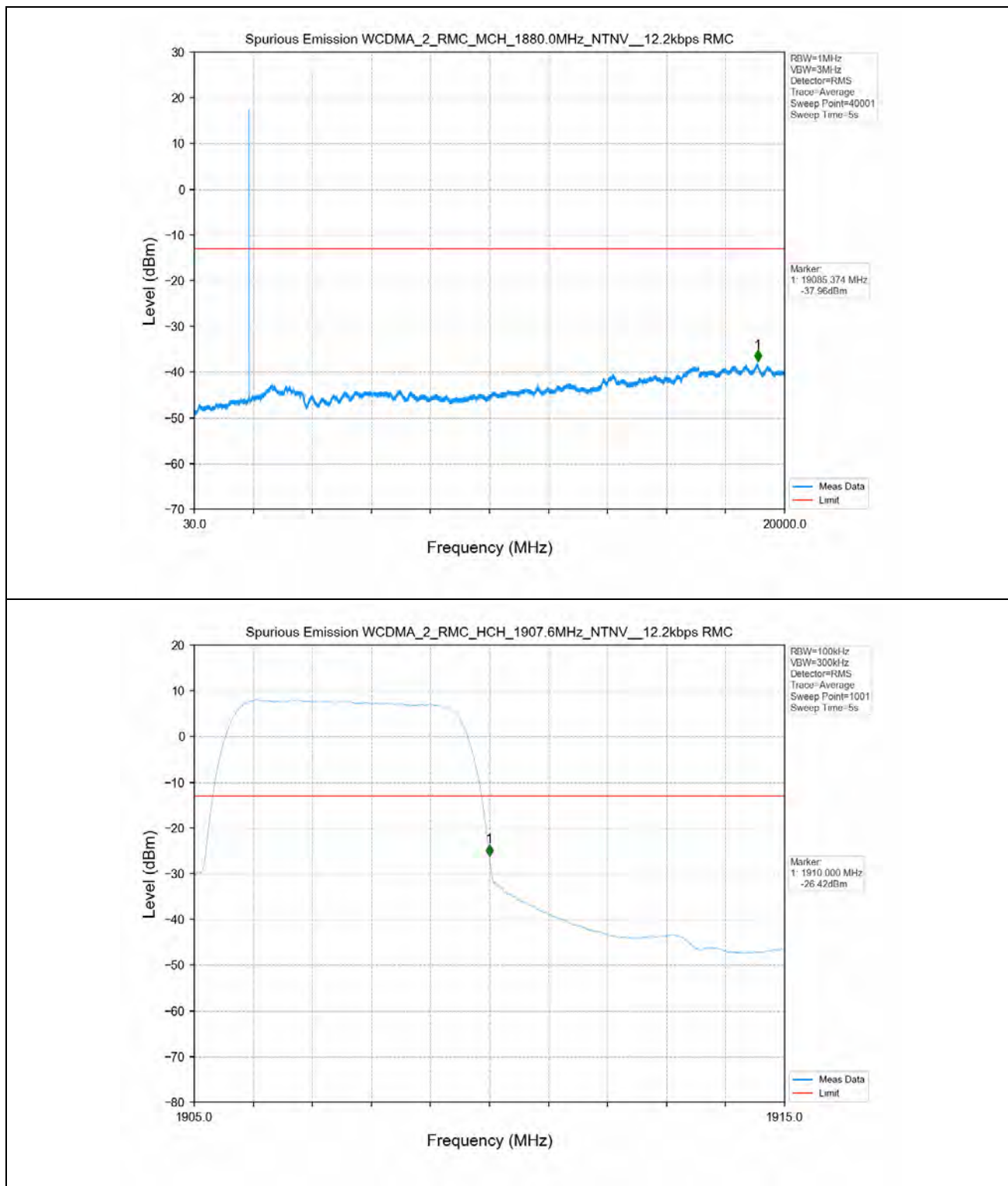


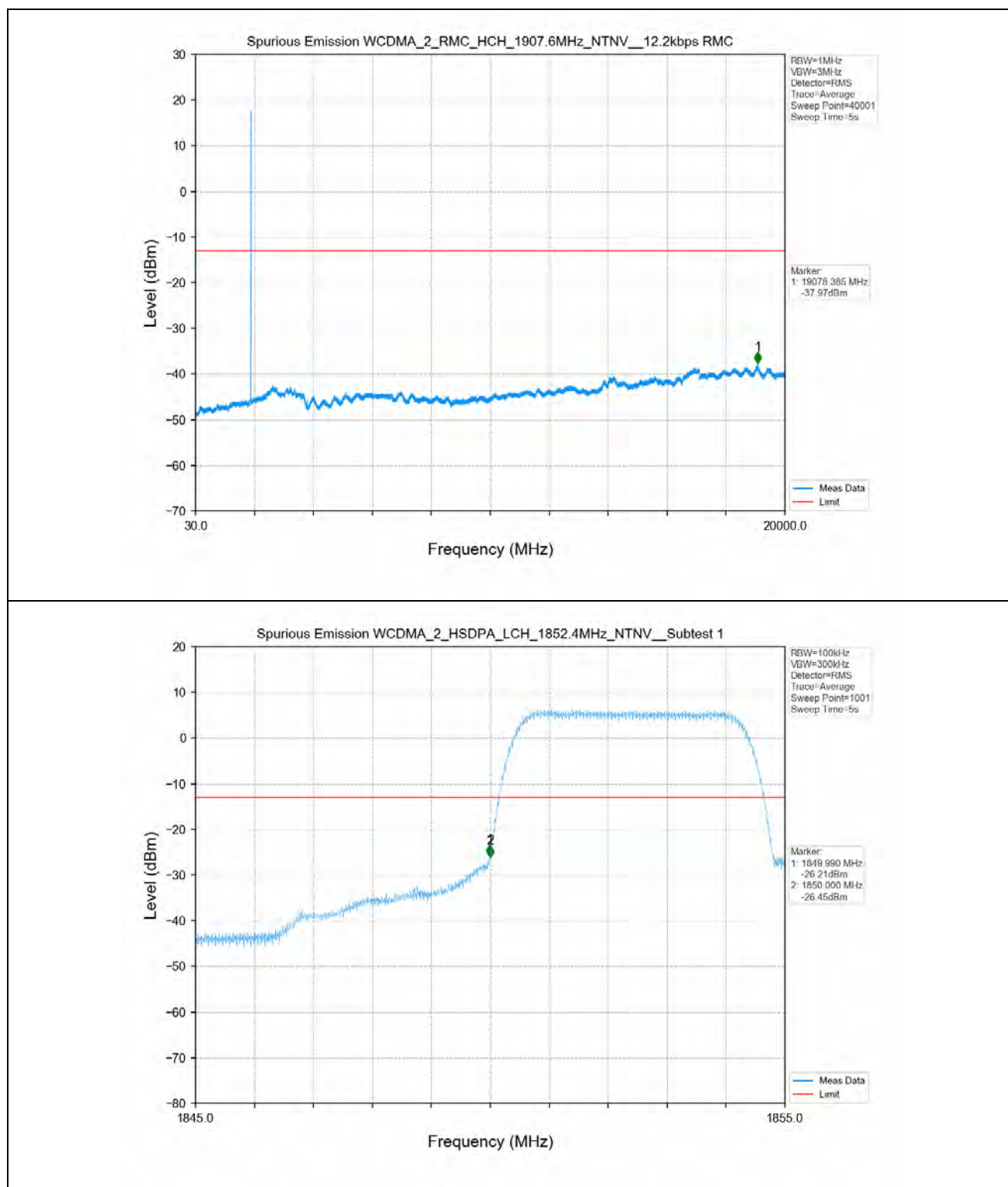
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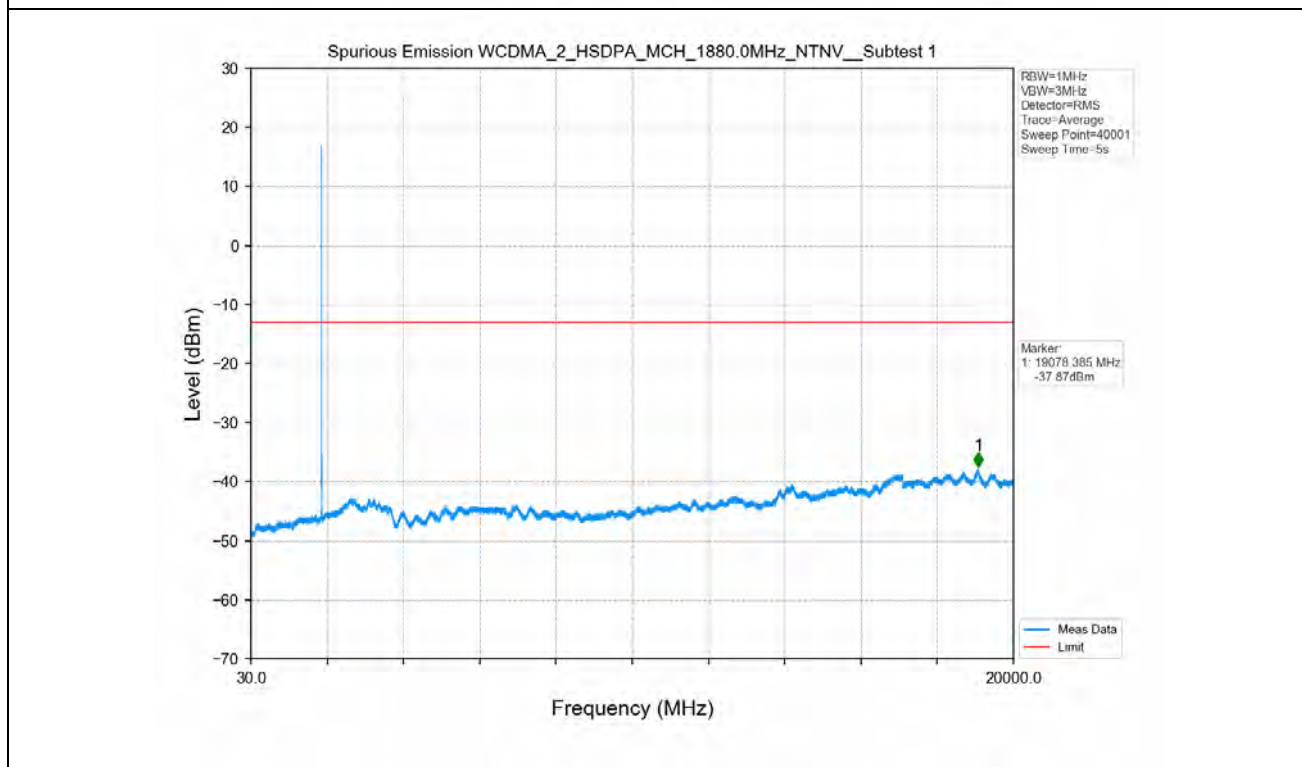
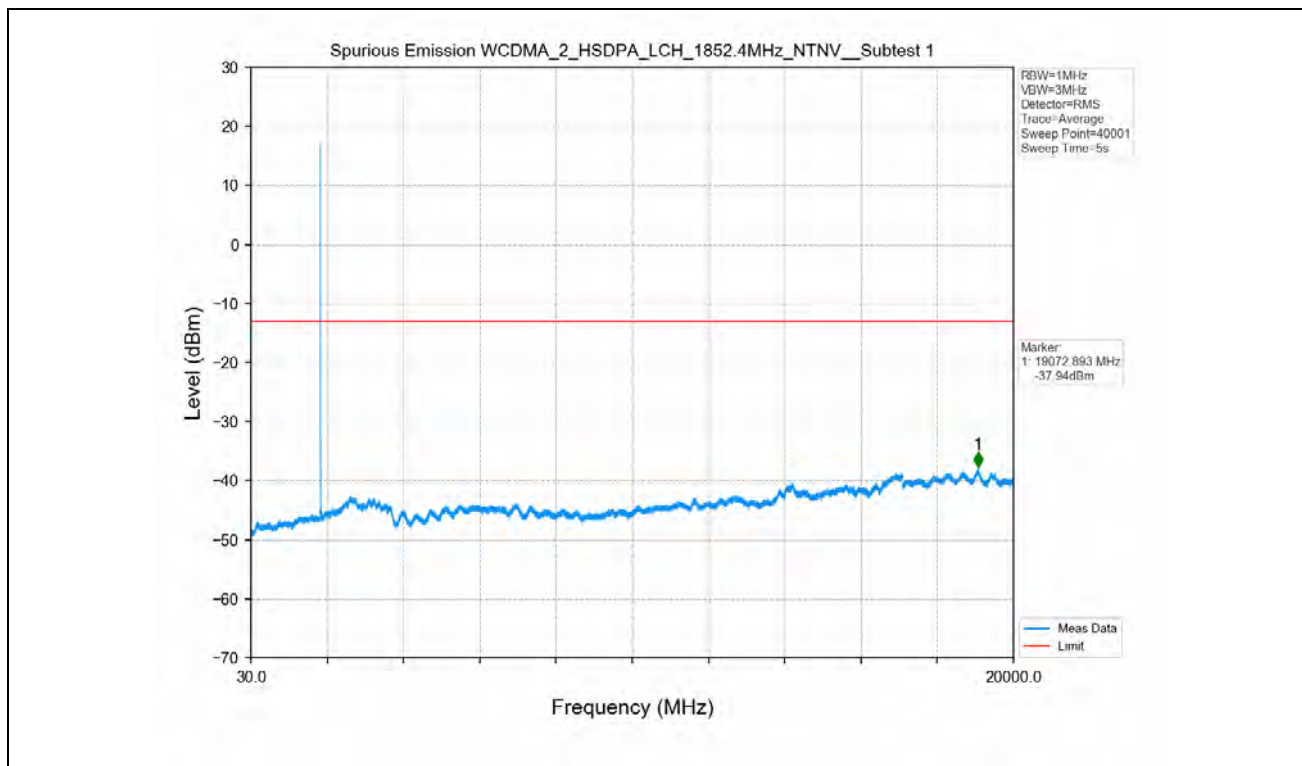


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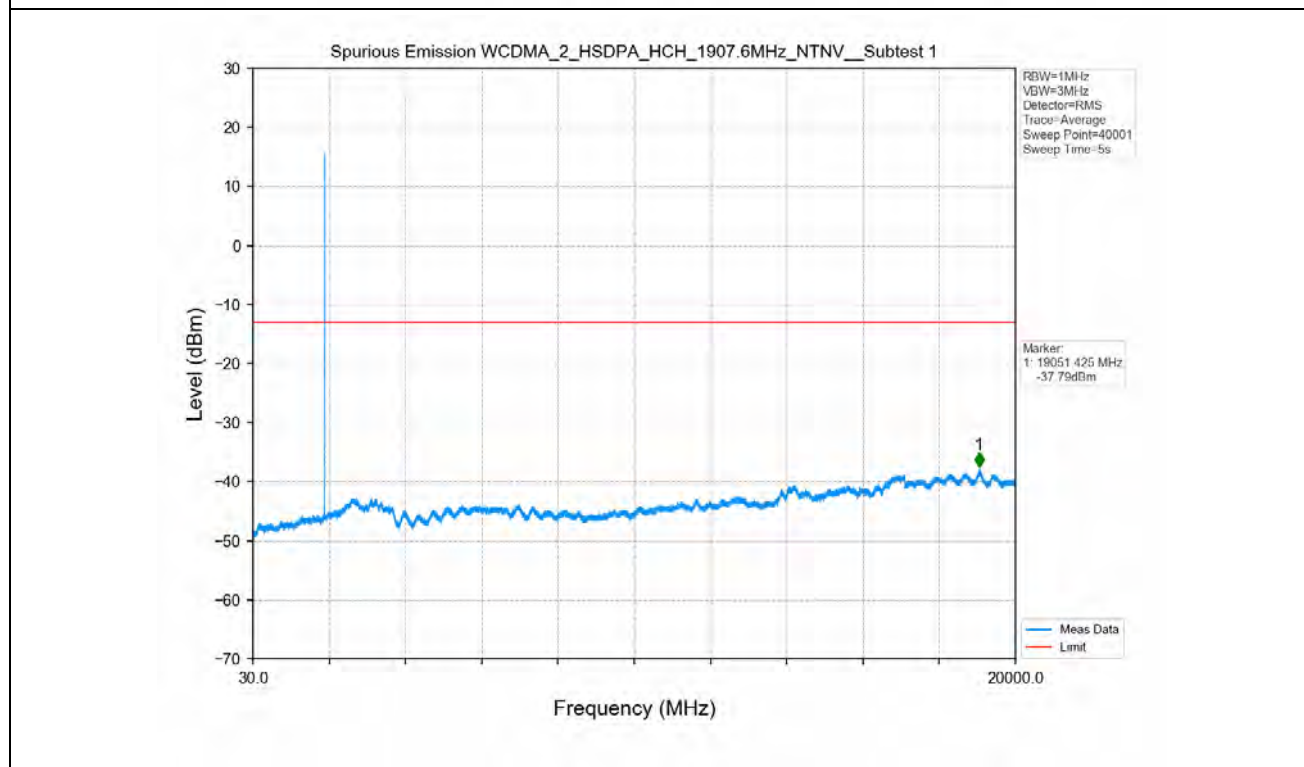
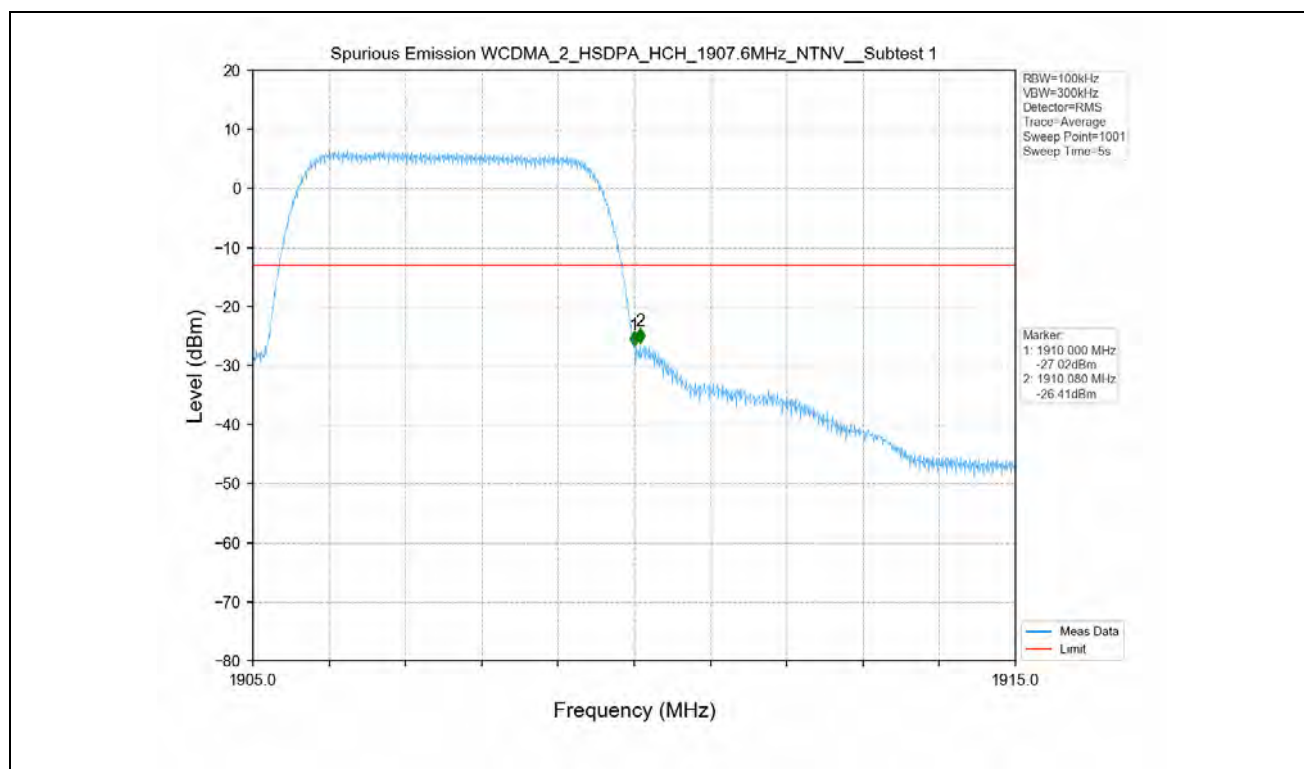


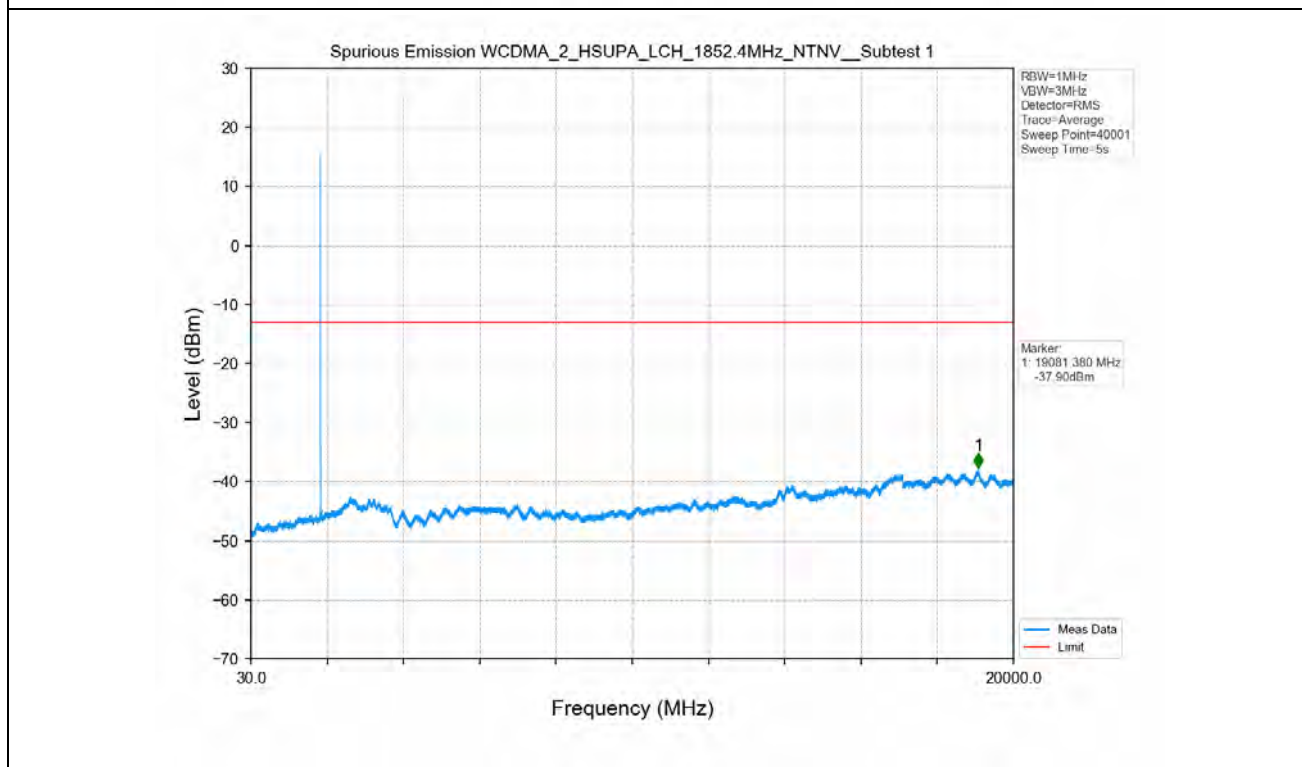
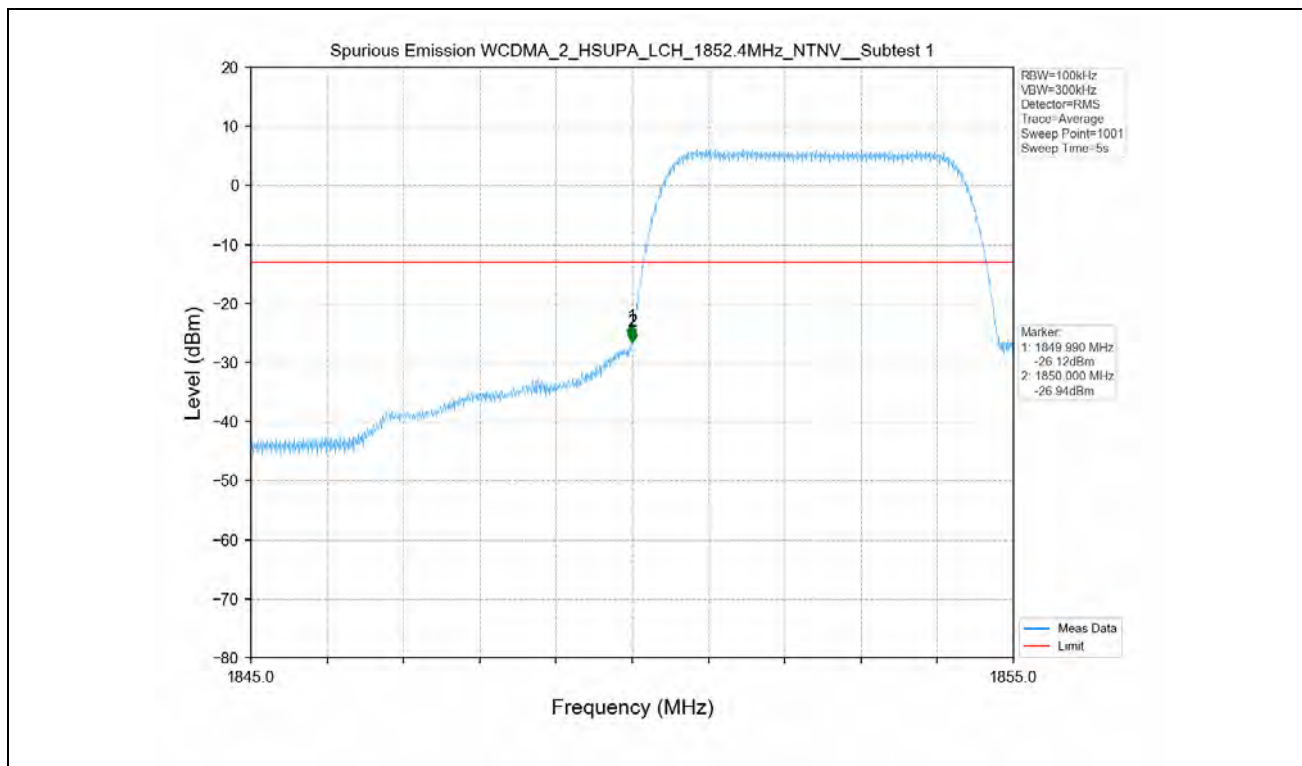
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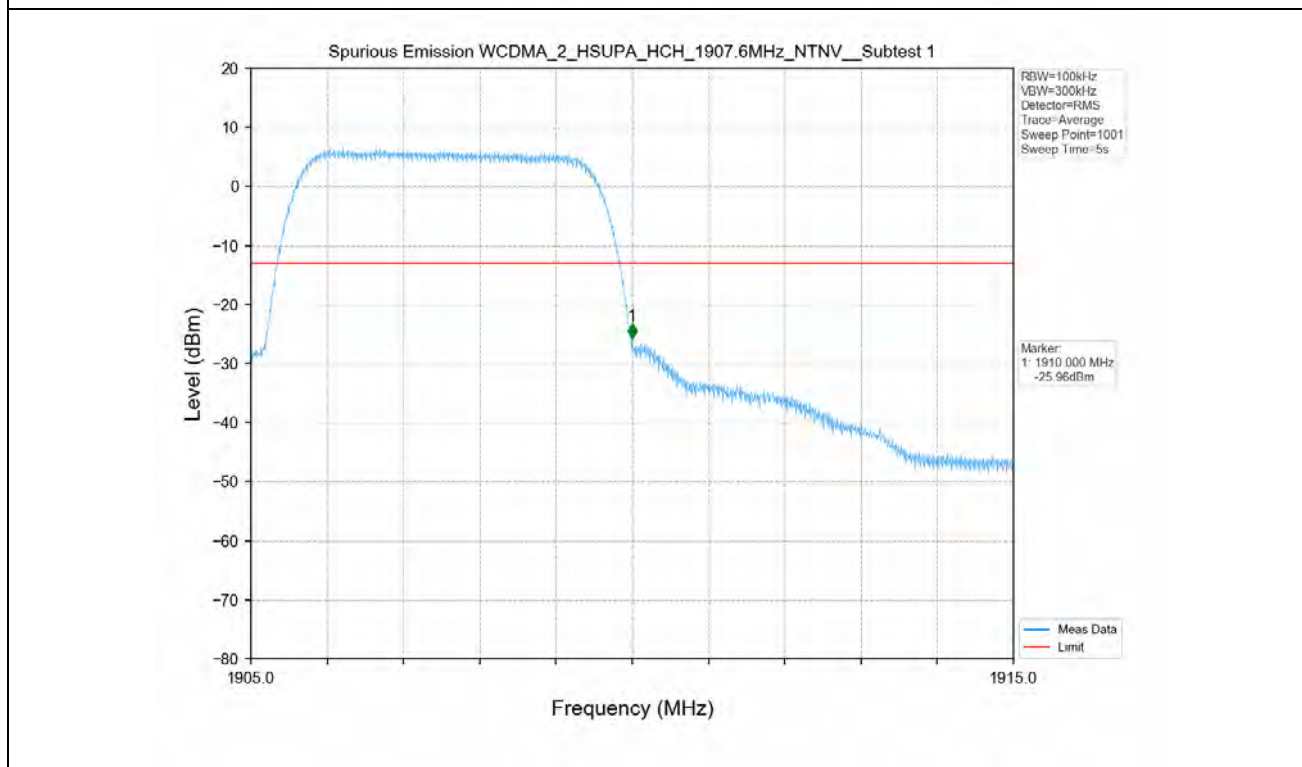
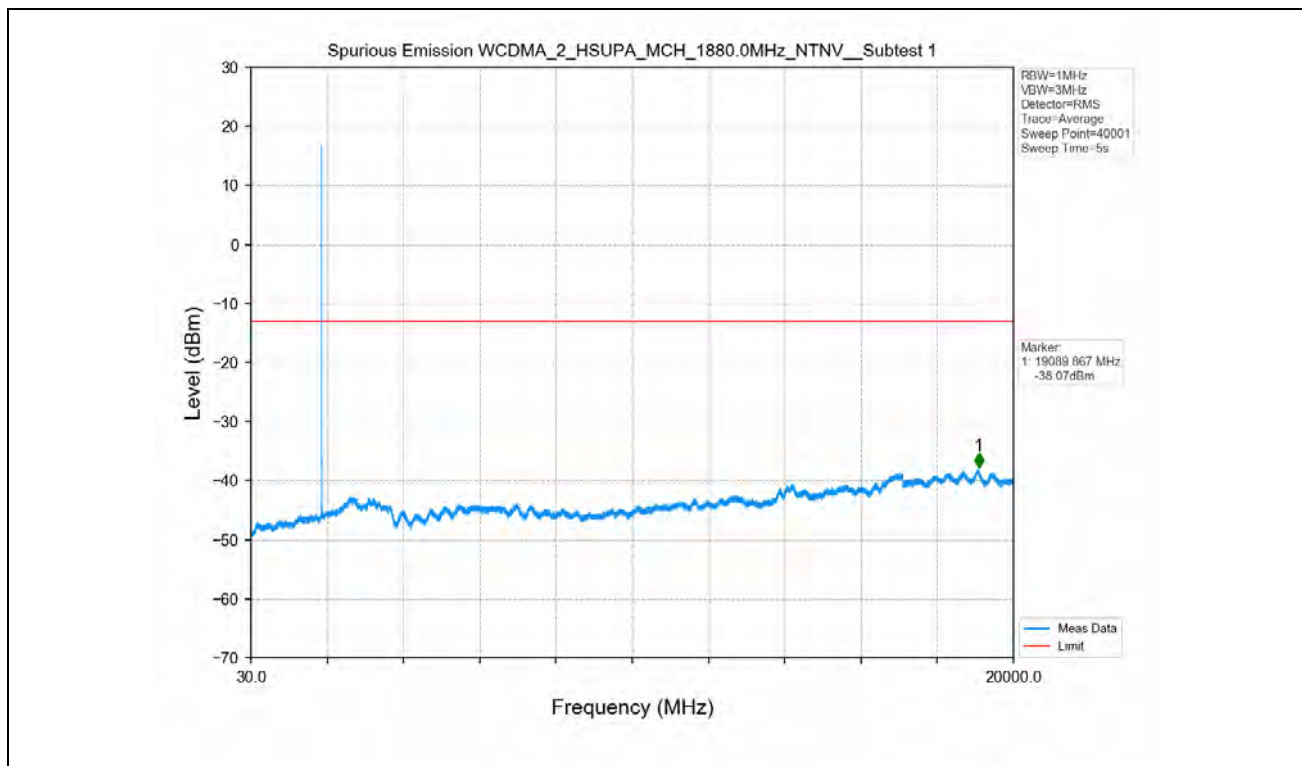
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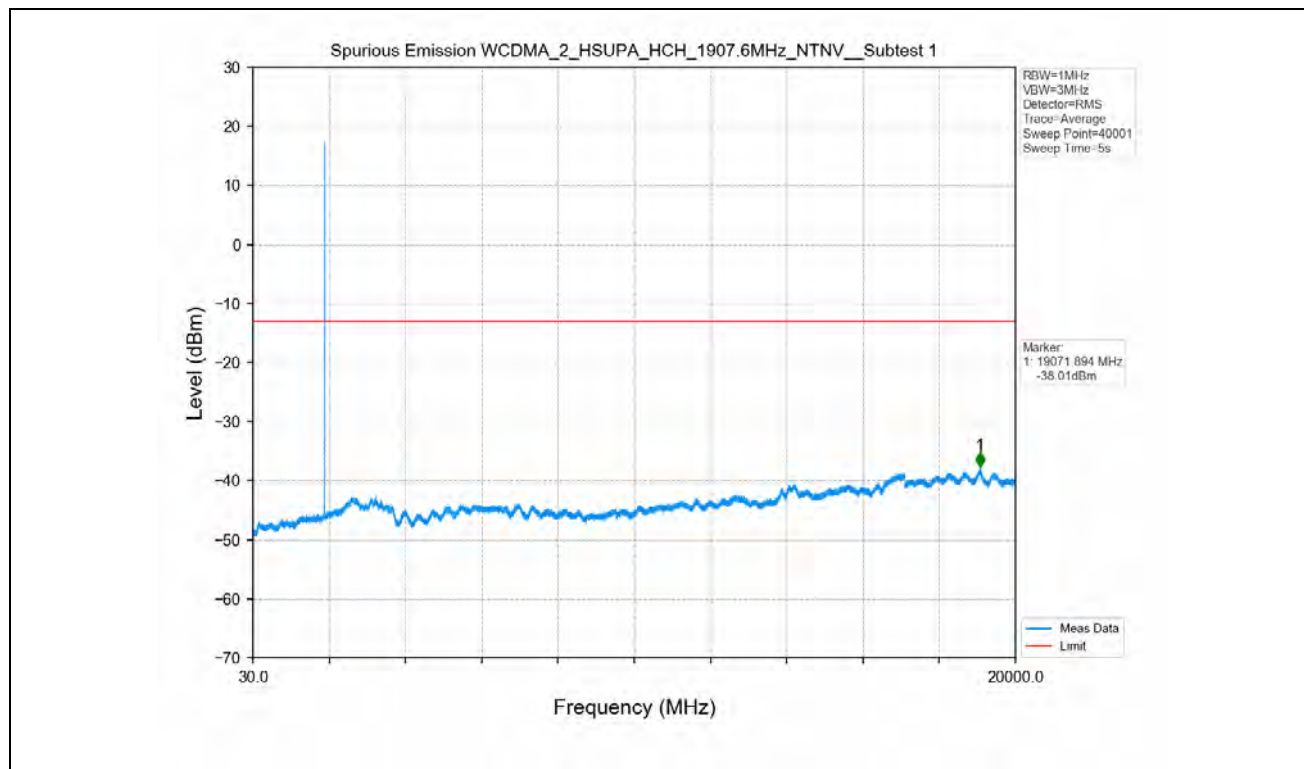


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5. Frequency stability

5.1 Test Result

Test Band: 2 (Frequency Error VS. Voltage)										
Test Mode	Test Temp.	Test Volt.	Freq. Error (Hz)			Freq. vs. rated (ppm)			Limit (ppm)	Verdict
			LCH	MCH	HCH	LCH	MCH	HCH		
HSUPA	NT	LV	-8.0000	-10.0000	-10.0000	-0.0044	-0.0058	-0.0054	2.50	PASS
		NV	-8.0000	-15.0000	-10.0000	-0.0047	-0.0081	-0.0052	2.50	PASS
		HV	-7.0000	-14.0000	-11.0000	-0.0042	-0.0076	-0.0060	2.50	PASS
HSDPA	NT	LV	-9.0000	-12.0000	-10.0000	-0.0050	-0.0065	-0.0058	2.50	PASS
		NV	-8.0000	-11.0000	-12.0000	-0.0047	-0.0062	-0.0064	2.50	PASS
		HV	-7.0000	-12.0000	-11.0000	-0.0041	-0.0066	-0.0060	2.50	PASS
RMC	NT	LV	-5.0000	-4.0000	-7.0000	-0.0029	-0.0026	-0.0039	2.50	PASS
		NV	-4.0000	-5.0000	-4.0000	-0.0026	-0.0028	-0.0024	2.50	PASS
		HV	-3.0000	-6.0000	-6.0000	-0.0019	-0.0035	-0.0036	2.50	PASS

Test Band: 2 (Frequency Error VS. Temperature)										
Test Mode	Test Volt.	Test Temp.	Freq. Error (Hz)			Freq. vs. rated (ppm)			Limit (ppm)	Verdict
			LCH	MCH	HCH	LCH	MCH	HCH		
HSUPA	NV	-30.00	-9.0000	-13.0000	-11.0000	-0.0050	-0.0071	-0.0059	2.50	PASS
		-20.00	-10.0000	-14.0000	-13.0000	-0.0055	-0.0076	-0.0069	2.50	PASS
		-10.00	-9.0000	-12.0000	-12.0000	-0.0049	-0.0067	-0.0067	2.50	PASS
		0.00	-8.0000	-12.0000	-12.0000	-0.0045	-0.0065	-0.0066	2.50	PASS
		10.00	-9.0000	-13.0000	-13.0000	-0.0049	-0.0072	-0.0070	2.50	PASS
		20.00	-8.0000	-11.0000	-11.0000	-0.0044	-0.0063	-0.0061	2.50	PASS
		30.00	-10.0000	-12.0000	-9.0000	-0.0059	-0.0065	-0.0052	2.50	PASS
		40.00	-9.0000	-14.0000	-10.0000	-0.0049	-0.0078	-0.0054	2.50	PASS
		50.00	-8.0000	-11.0000	-10.0000	-0.0046	-0.0063	-0.0054	2.50	PASS
HSDPA	NV	-30.00	-9.0000	-12.0000	-11.0000	-0.0052	-0.0065	-0.0059	2.50	PASS
		-20.00	-7.0000	-13.0000	-10.0000	-0.0042	-0.0070	-0.0057	2.50	PASS
		-10.00	-7.0000	-11.0000	-10.0000	-0.0041	-0.0063	-0.0055	2.50	PASS
		0.00	-8.0000	-13.0000	-9.0000	-0.0047	-0.0071	-0.0050	2.50	PASS
		10.00	-8.0000	-12.0000	-11.0000	-0.0046	-0.0066	-0.0059	2.50	PASS
		20.00	-8.0000	-10.0000	-9.0000	-0.0047	-0.0058	-0.0049	2.50	PASS
		30.00	-7.0000	-13.0000	-10.0000	-0.0043	-0.0072	-0.0055	2.50	PASS
		40.00	-11.0000	-15.0000	-9.0000	-0.0061	-0.0084	-0.0051	2.50	PASS
		50.00	-11.0000	-14.0000	-10.0000	-0.0064	-0.0079	-0.0057	2.50	PASS
RMC	NV	-30.00	-5.0000	-3.0000	-6.0000	-0.0028	-0.0017	-0.0034	2.50	PASS
		-20.00	-4.0000	-6.0000	-6.0000	-0.0025	-0.0034	-0.0035	2.50	PASS
		-10.00	-5.0000	-4.0000	-4.0000	-0.0030	-0.0022	-0.0024	2.50	PASS
		0.00	-6.0000	-4.0000	-5.0000	-0.0035	-0.0027	-0.0031	2.50	PASS



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		10.00	-5.0000	-5.0000	-4.0000	-0.0028	-0.0029	-0.0024	2.50	PASS
		20.00	-6.0000	-4.0000	-6.0000	-0.0034	-0.0026	-0.0033	2.50	PASS
		30.00	-7.0000	-3.0000	-7.0000	-0.0040	-0.0019	-0.0037	2.50	PASS
		40.00	-5.0000	-4.0000	-5.0000	-0.0032	-0.0023	-0.0027	2.50	PASS
		50.00	-6.0000	-5.0000	-4.0000	-0.0036	-0.0029	-0.0025	2.50	PASS



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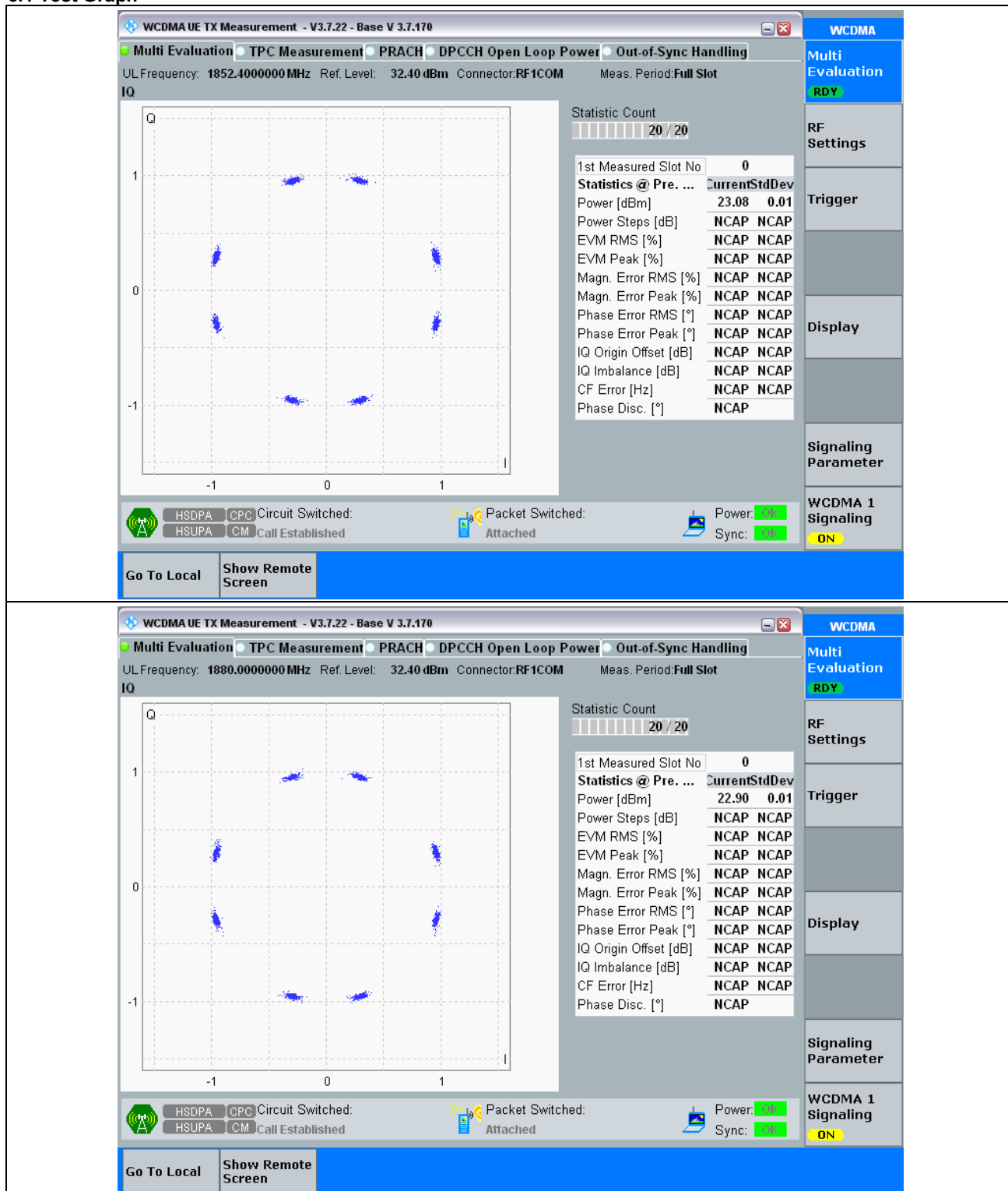
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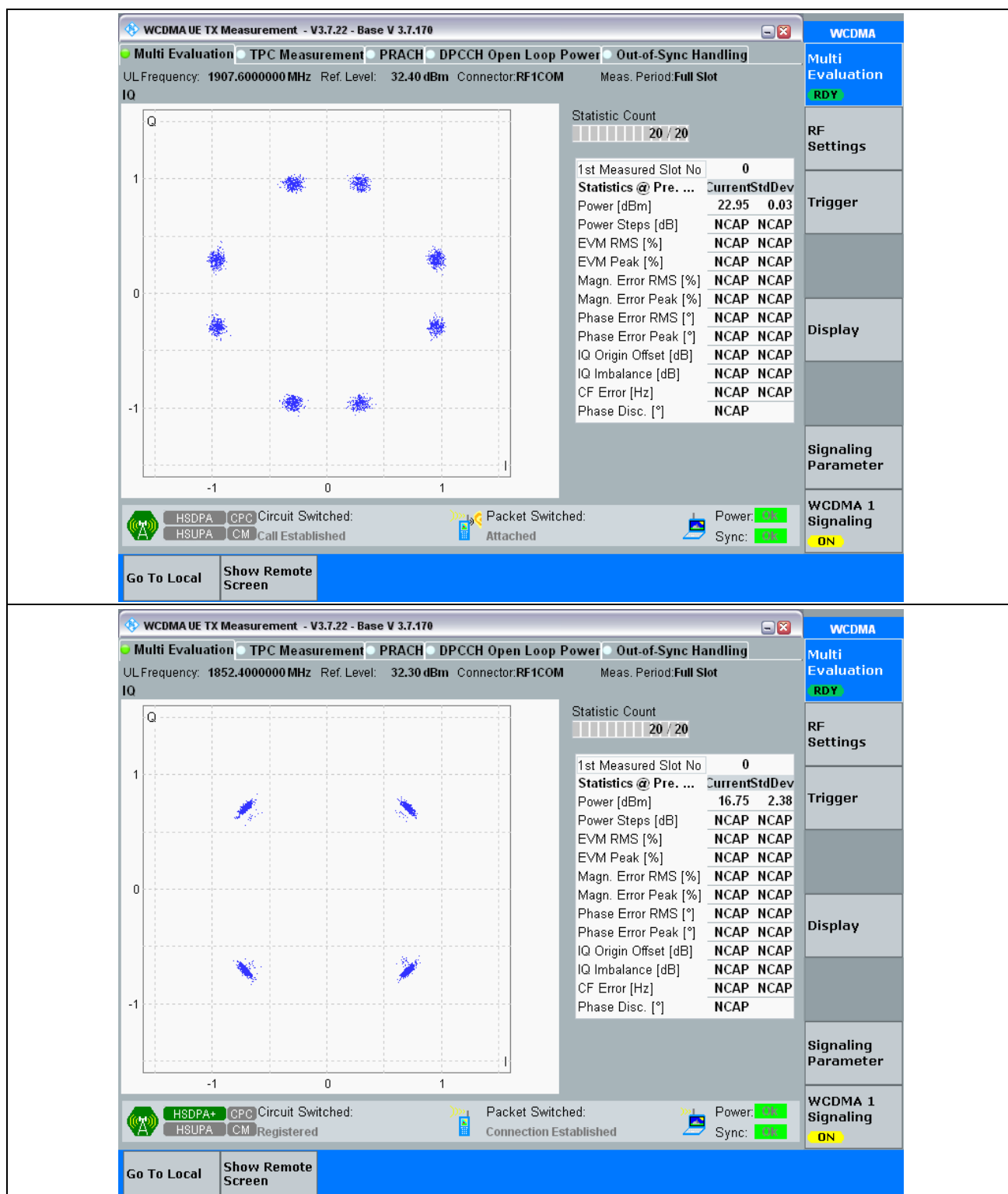
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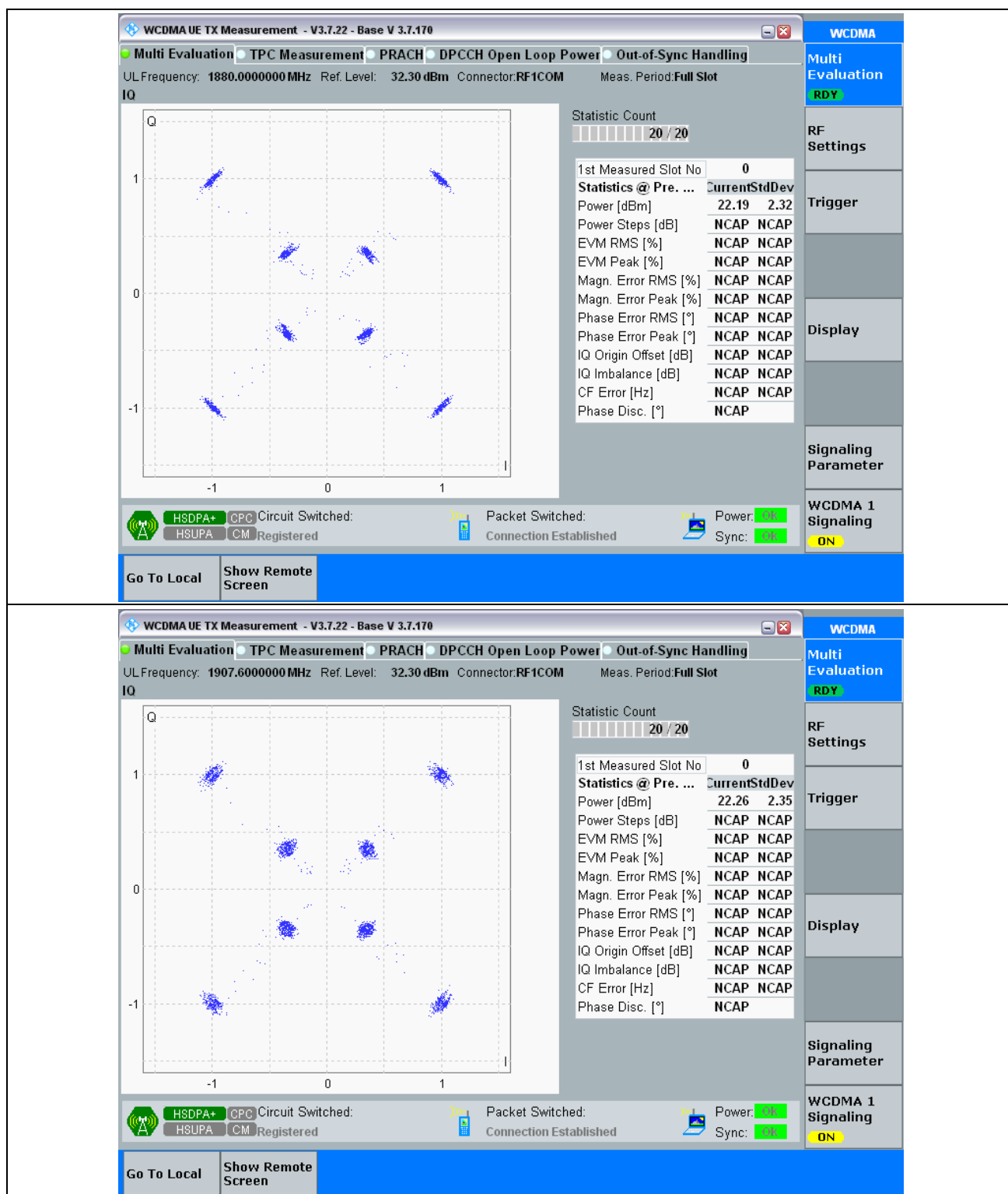
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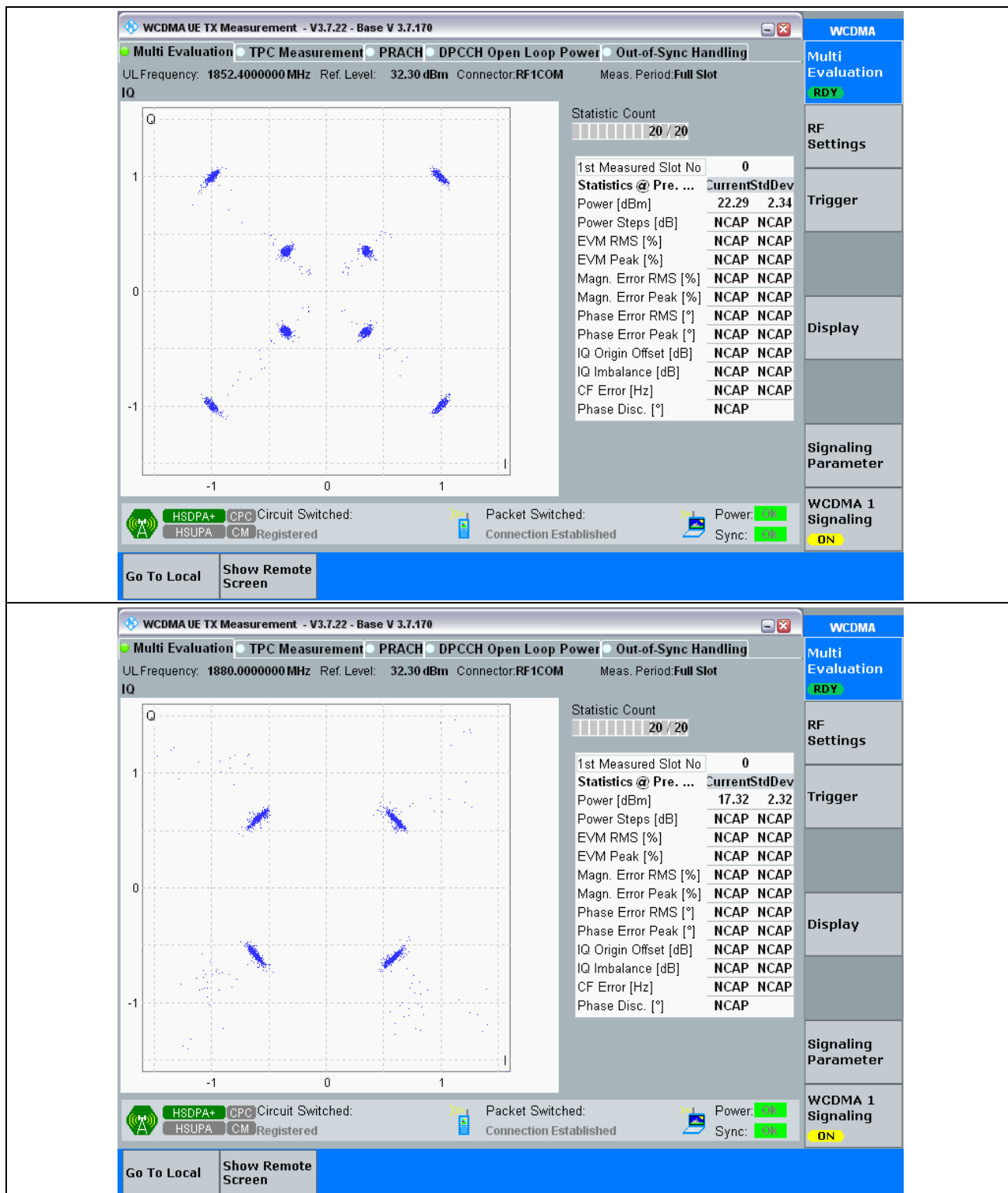
6. Modulation Characteristics

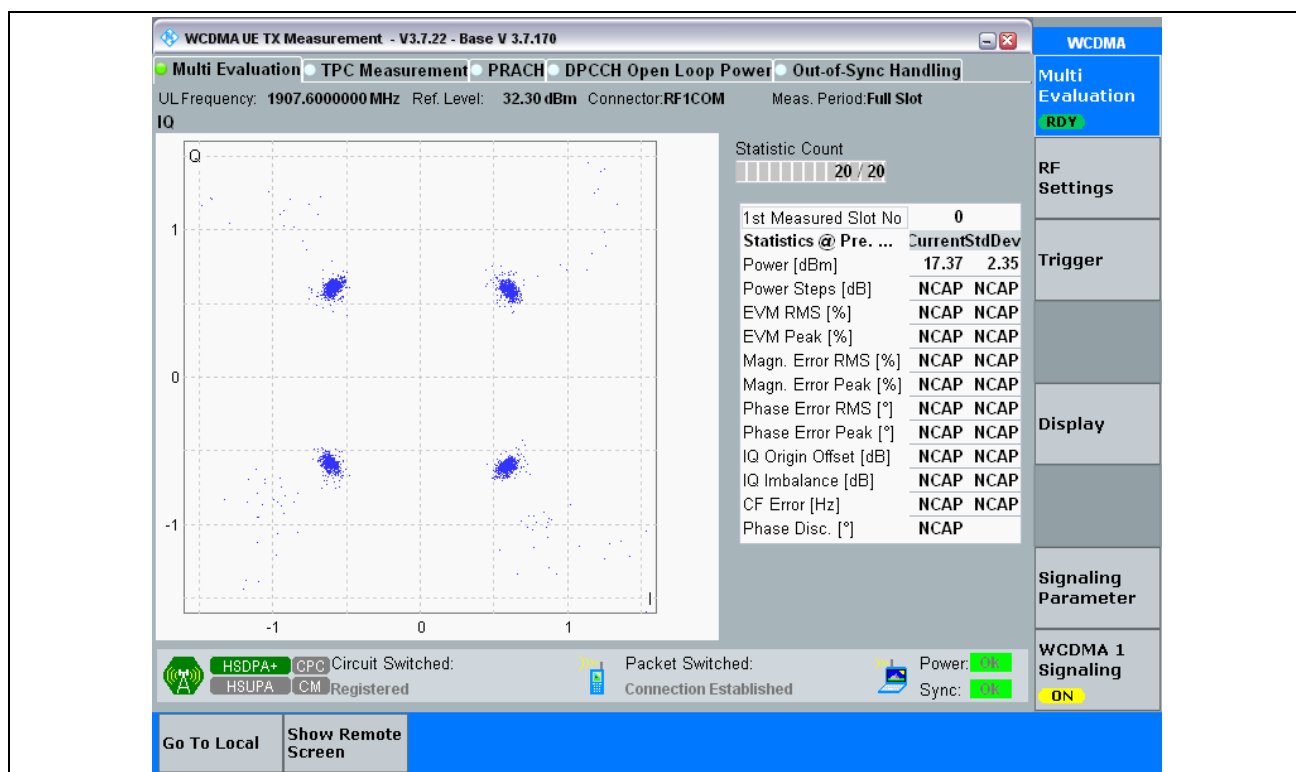
6.1 Test Graph











8.2 Appendix FCC data for WCDMA Band5.

1. Effective (Isotropic) Radiated Power Output Data

1.1 Test Result

Test Band: 5											
Test Mode		Conducted Power (dBm)			Antenna gain		ERP(dBm)			Limit (dBm)	Verdict
		LCH	MCH	HCH	(dBd)	(dBi)	LCH	MCH	HCH		
HSUPA	Subtest 1	20.27	20.16	19.89	2.85	5	23.12	23.01	22.74	38.45	PASS
	Subtest 2	20.27	20.34	20.34	2.85	5	23.12	23.19	23.19	38.45	PASS
	Subtest 3	20.26	19.89	19.89	2.85	5	23.11	22.74	22.74	38.45	PASS
	Subtest 4	20.27	20.11	20.15	2.85	5	23.12	22.96	23.00	38.45	PASS
	Subtest 5	20.04	20.11	19.89	2.85	5	22.89	22.96	22.74	38.45	PASS
HSDPA	Subtest 1	19.11	20.20	19.88	2.85	5	21.96	23.05	22.73	38.45	PASS
	Subtest 2	19.31	20.07	20.31	2.85	5	22.16	22.92	23.16	38.45	PASS
	Subtest 3	18.83	20.30	20.31	2.85	5	21.68	23.15	23.16	38.45	PASS
	Subtest 4	18.87	20.30	20.33	2.85	5	21.72	23.15	23.18	38.45	PASS
RMC	12.2kbps RMC	23.79	22.85	22.85	2.85	5	26.64	25.7	25.7	38.45	PASS

Note:
 1) dBd = dBi - 2.15
 2) EIRP = Conducted output power + Antenna gain (dBi)
 3) ERP = Conducted output power + Antenna gain (dBd)

2. Peak-Average Ratio

2.1 Test Result

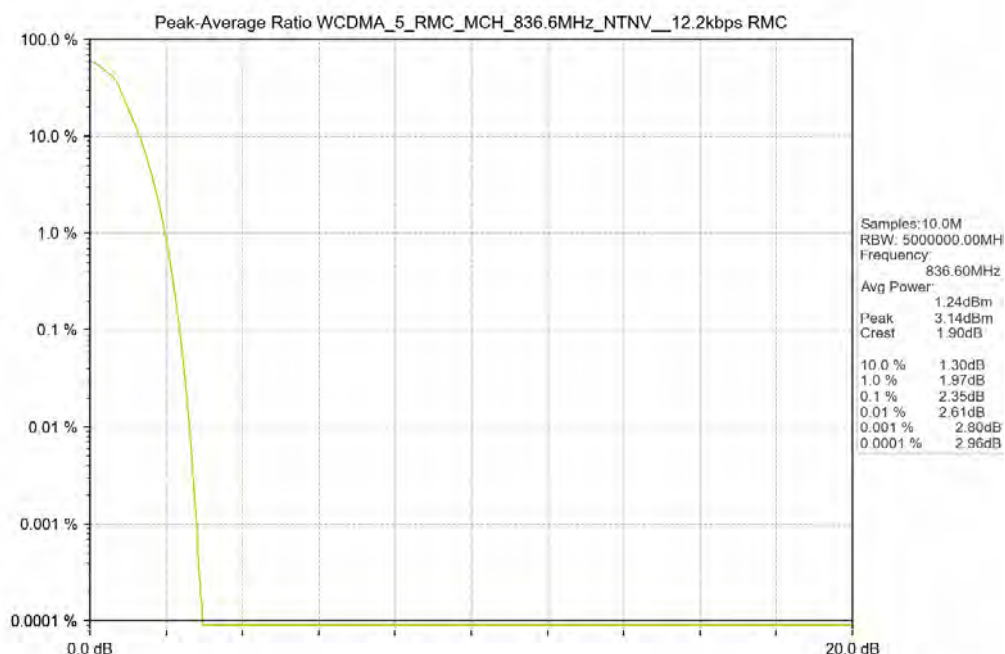
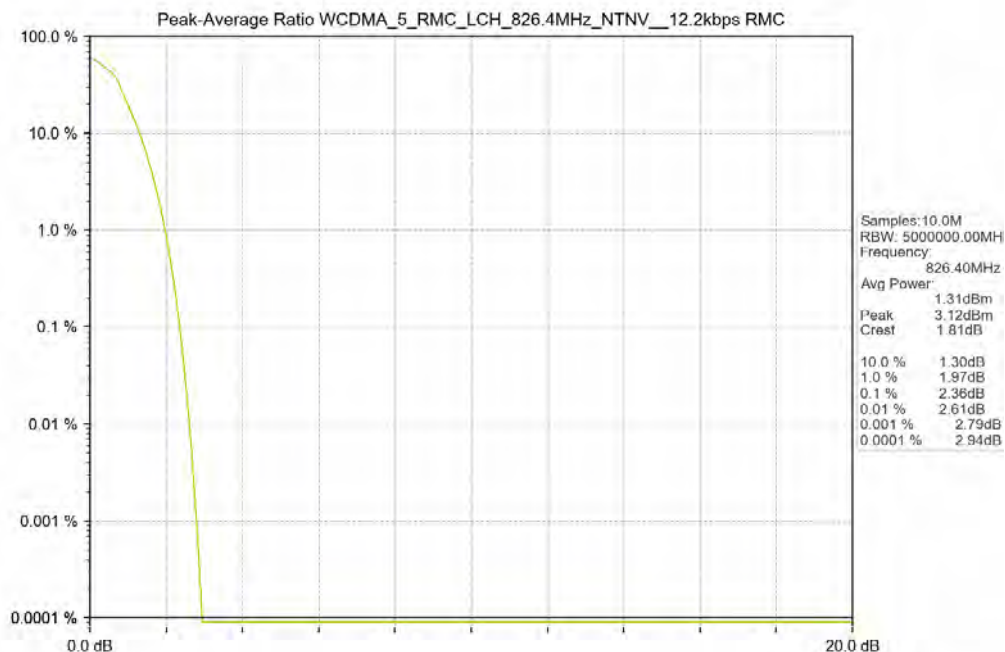
Test Band: 5					
Test Mode	Test result (dB)			Limit (dB)	Verdict
	LCH	MCH	HCH		
HSUPA	2.97	2.94	2.95	13	PASS
HSDPA	2.98	2.95	2.95	13	PASS
RMC	2.36	2.35	2.36	13	PASS

2.2 Test Graph



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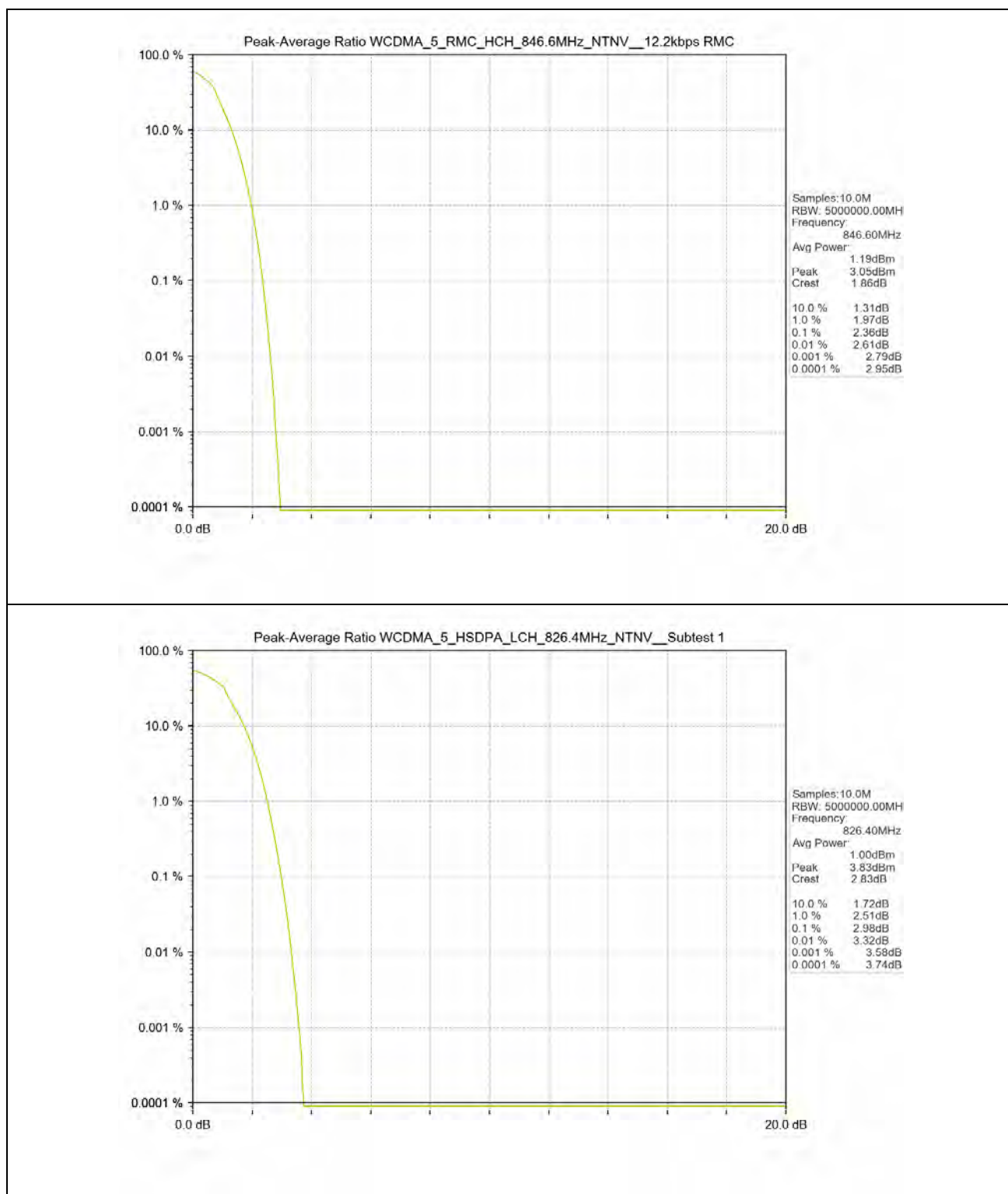


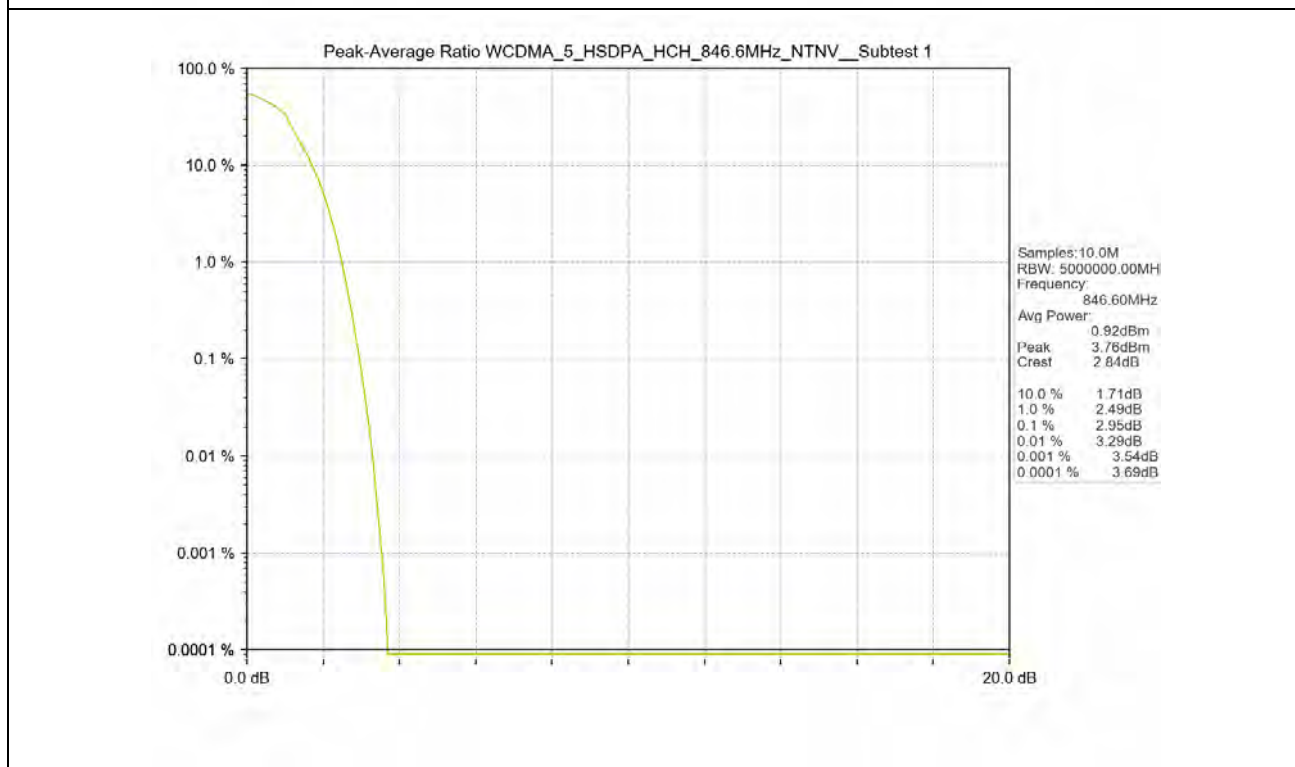
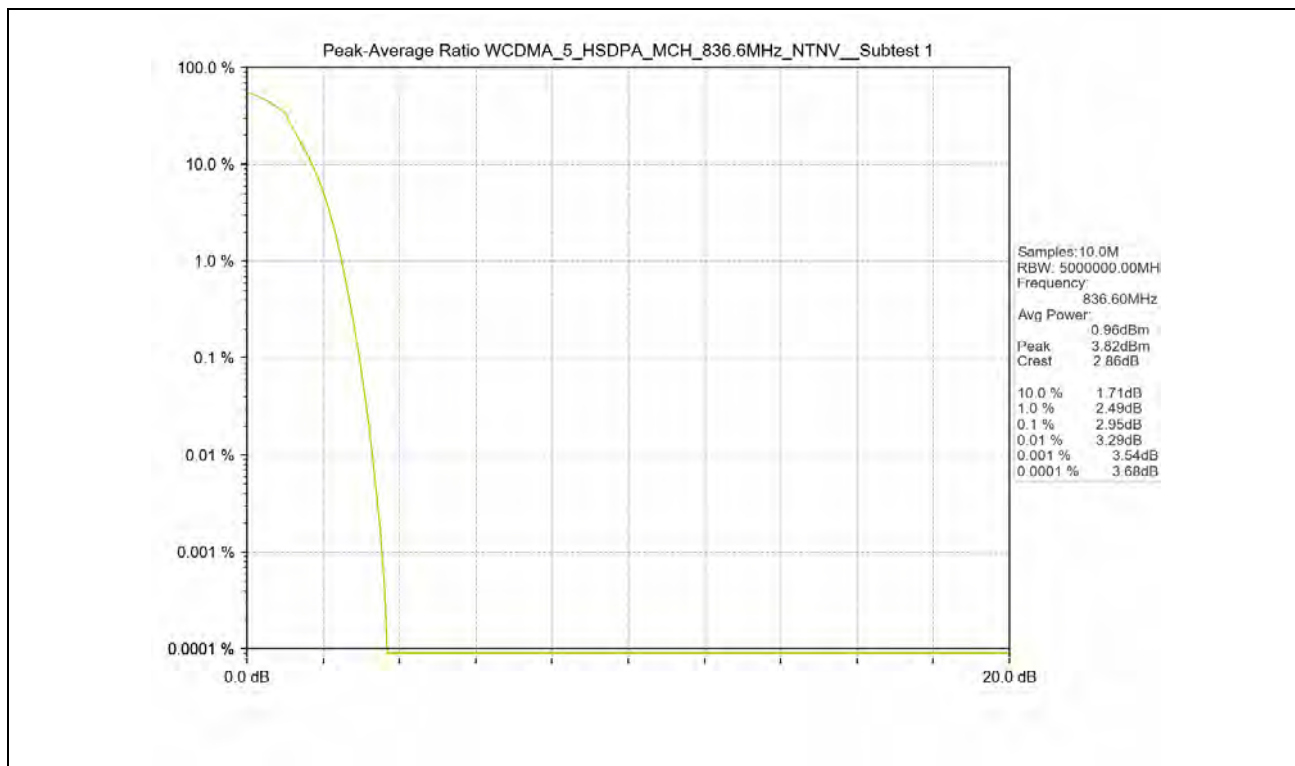
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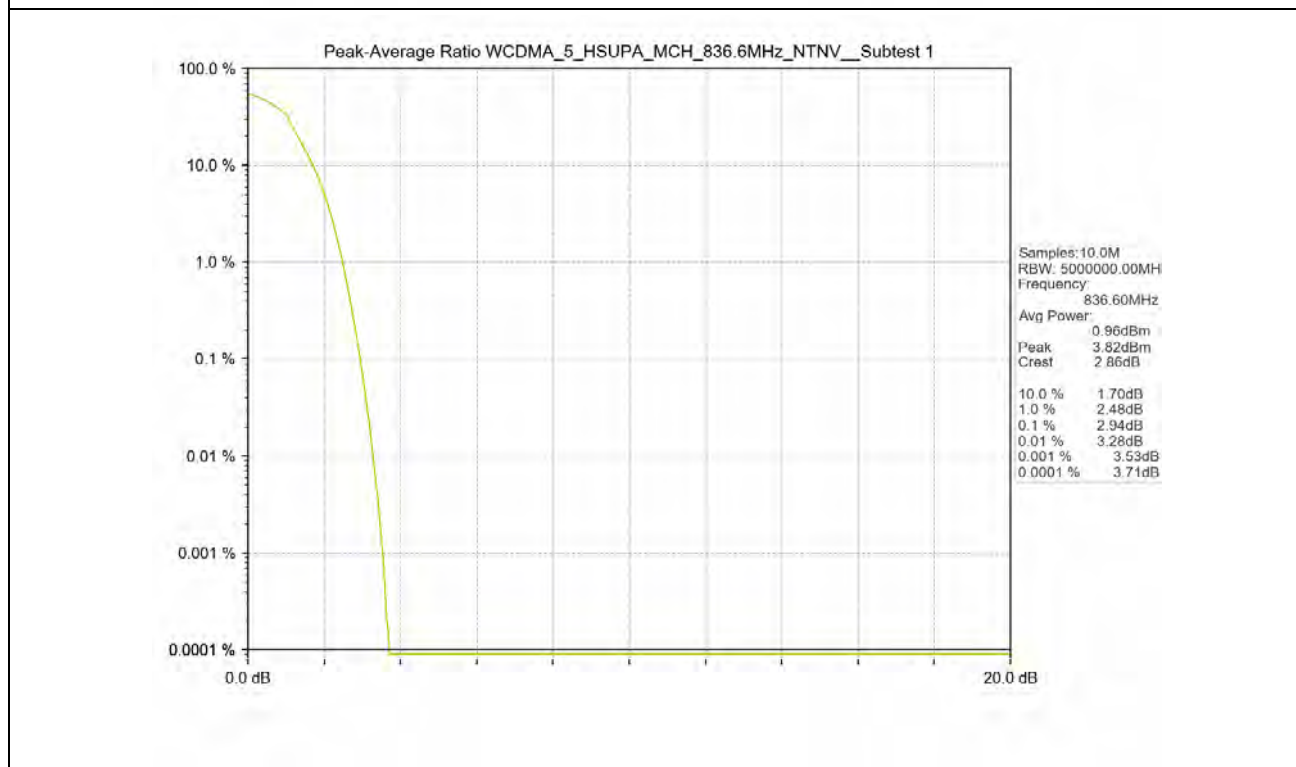
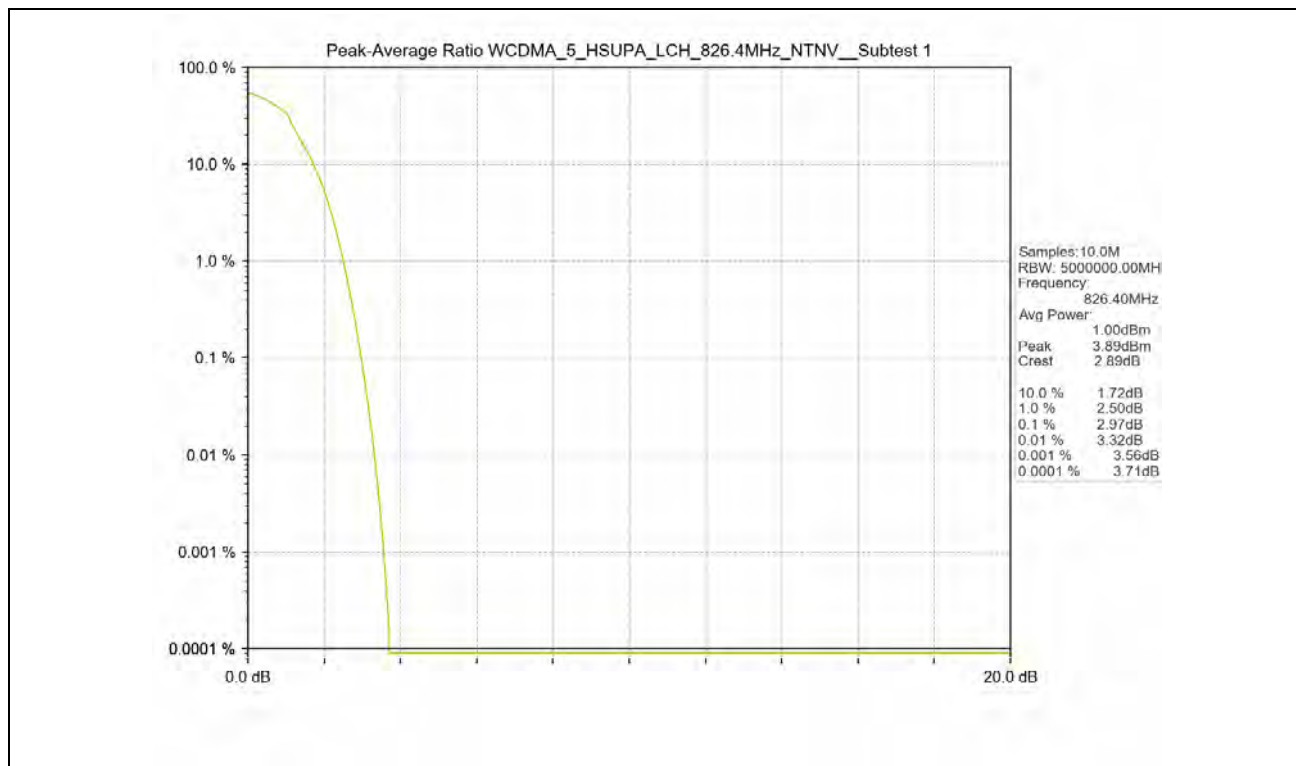


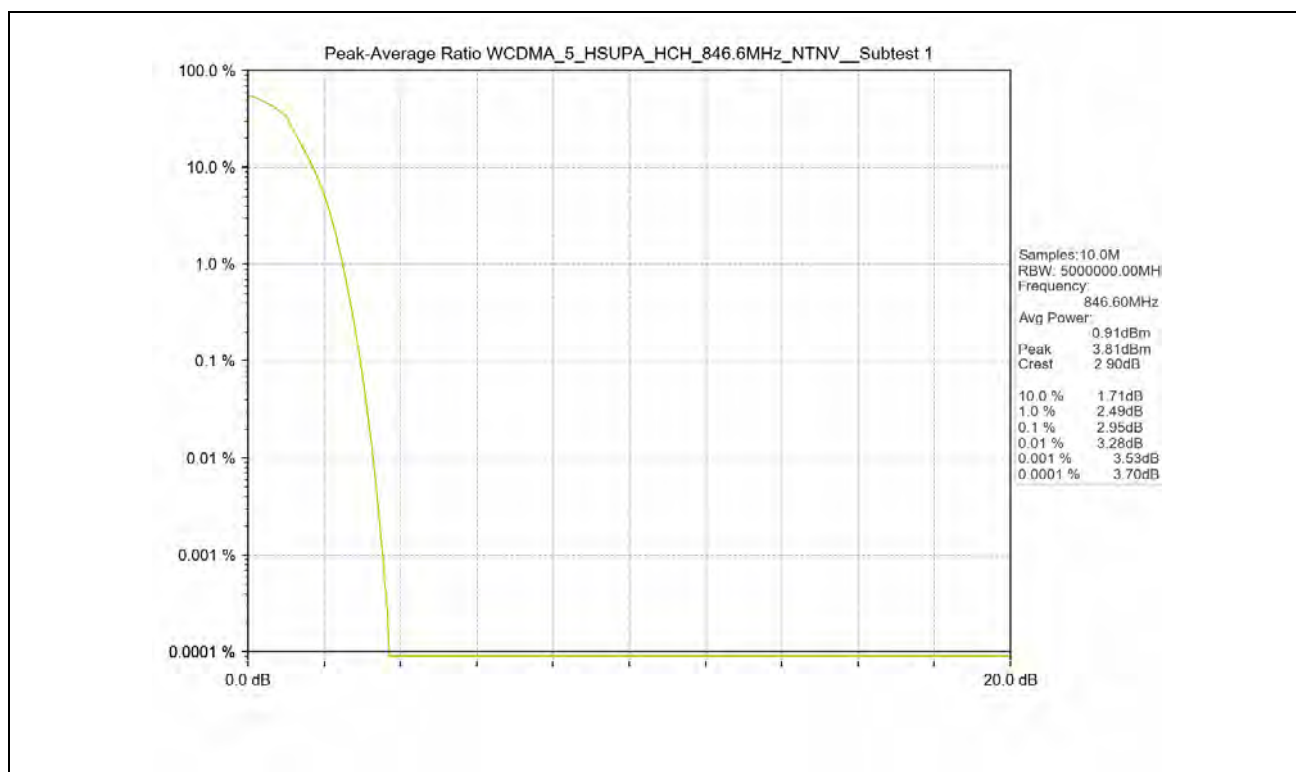
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3. 99% & 26dB Bandwidth

3.1 Test Result

Test Band: 5					
Test Mode	99% Occupied Bandwidth (MHz)			Limit	Verdict
	LCH	MCH	HCH		
HSUPA	4.150	4.170	4.150	N/A	PASS
HSDPA	4.150	4.170	4.150	N/A	PASS
RMC	4.100	4.100	4.070	N/A	PASS

3.2 Test Graph

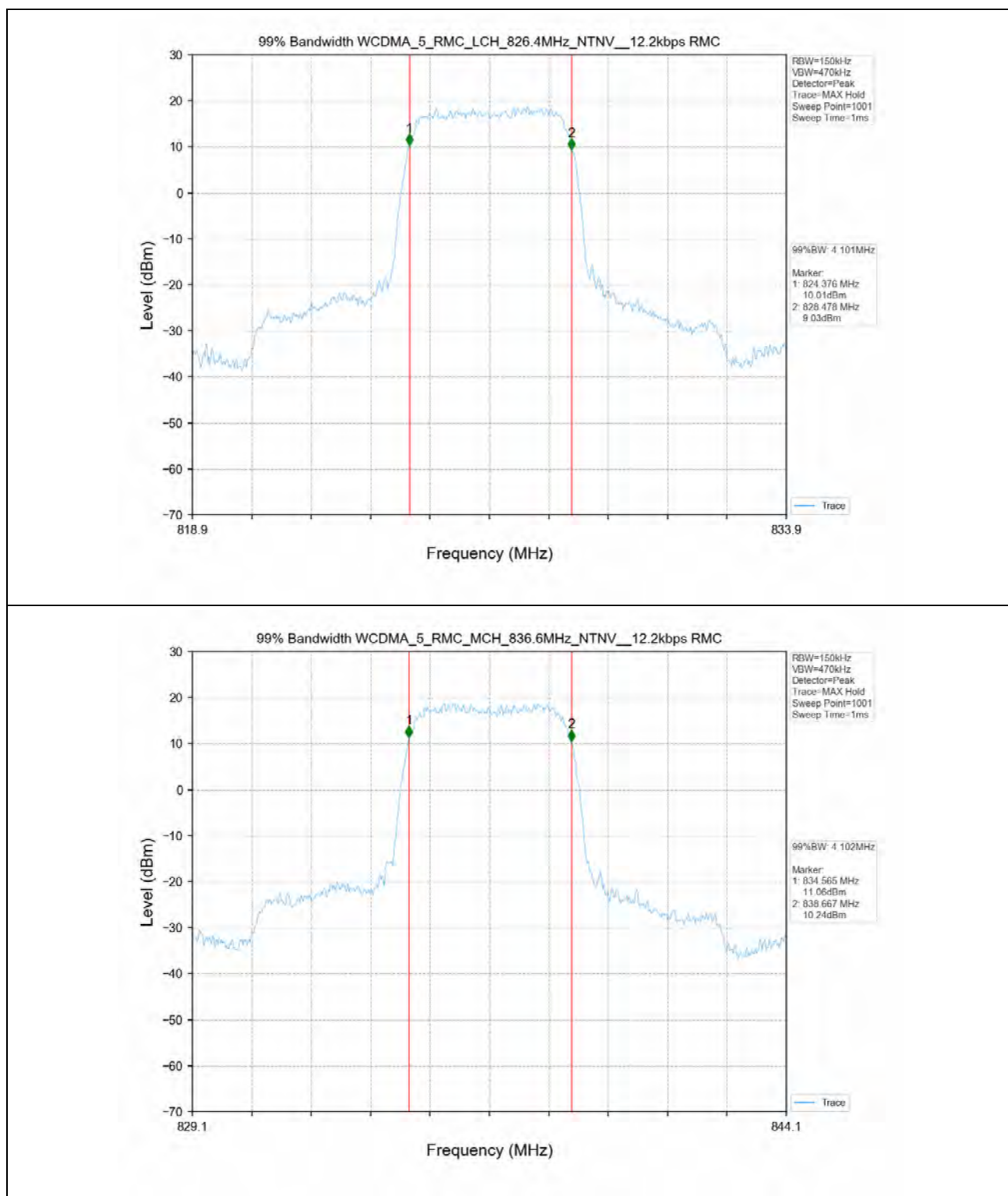


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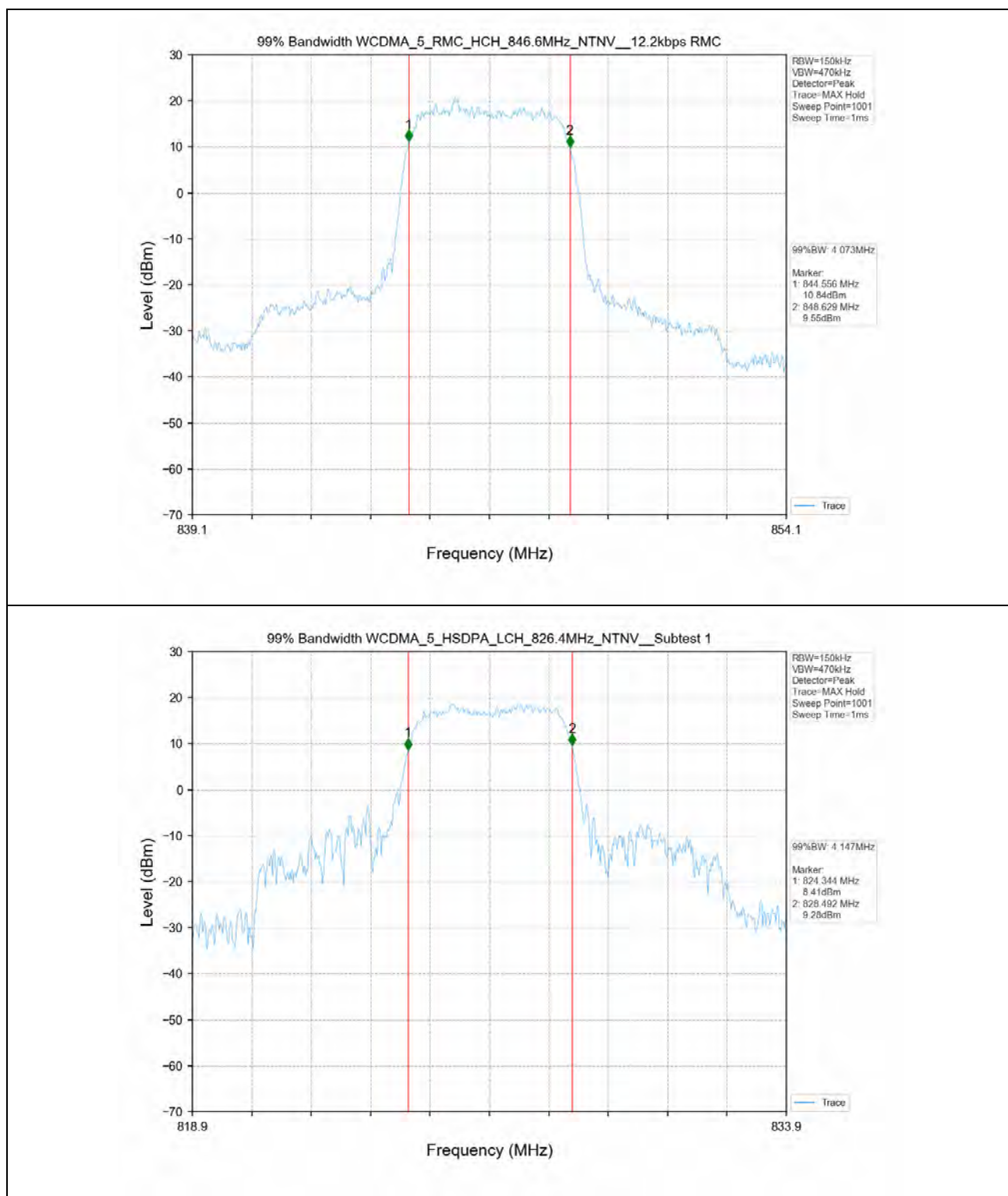


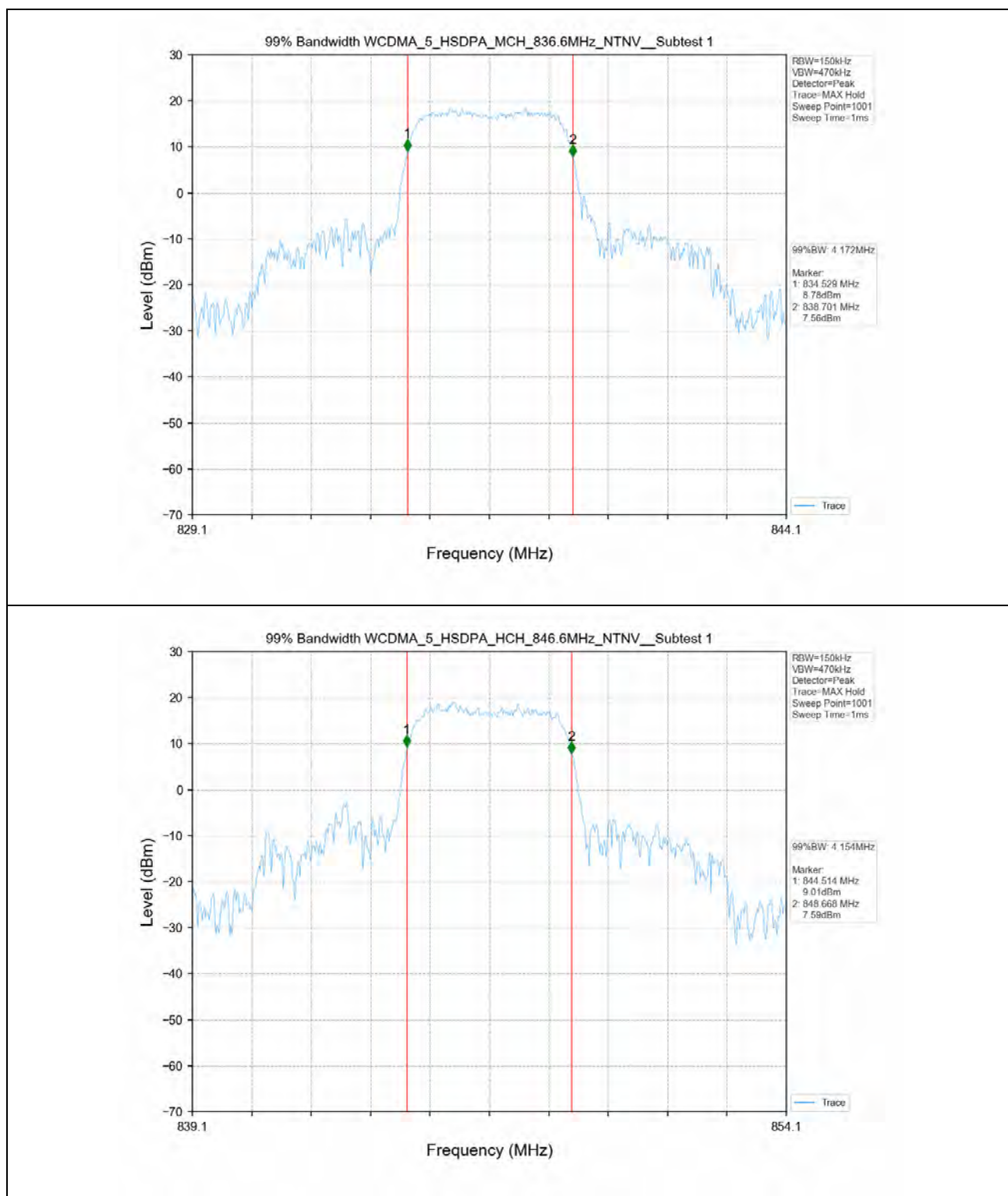
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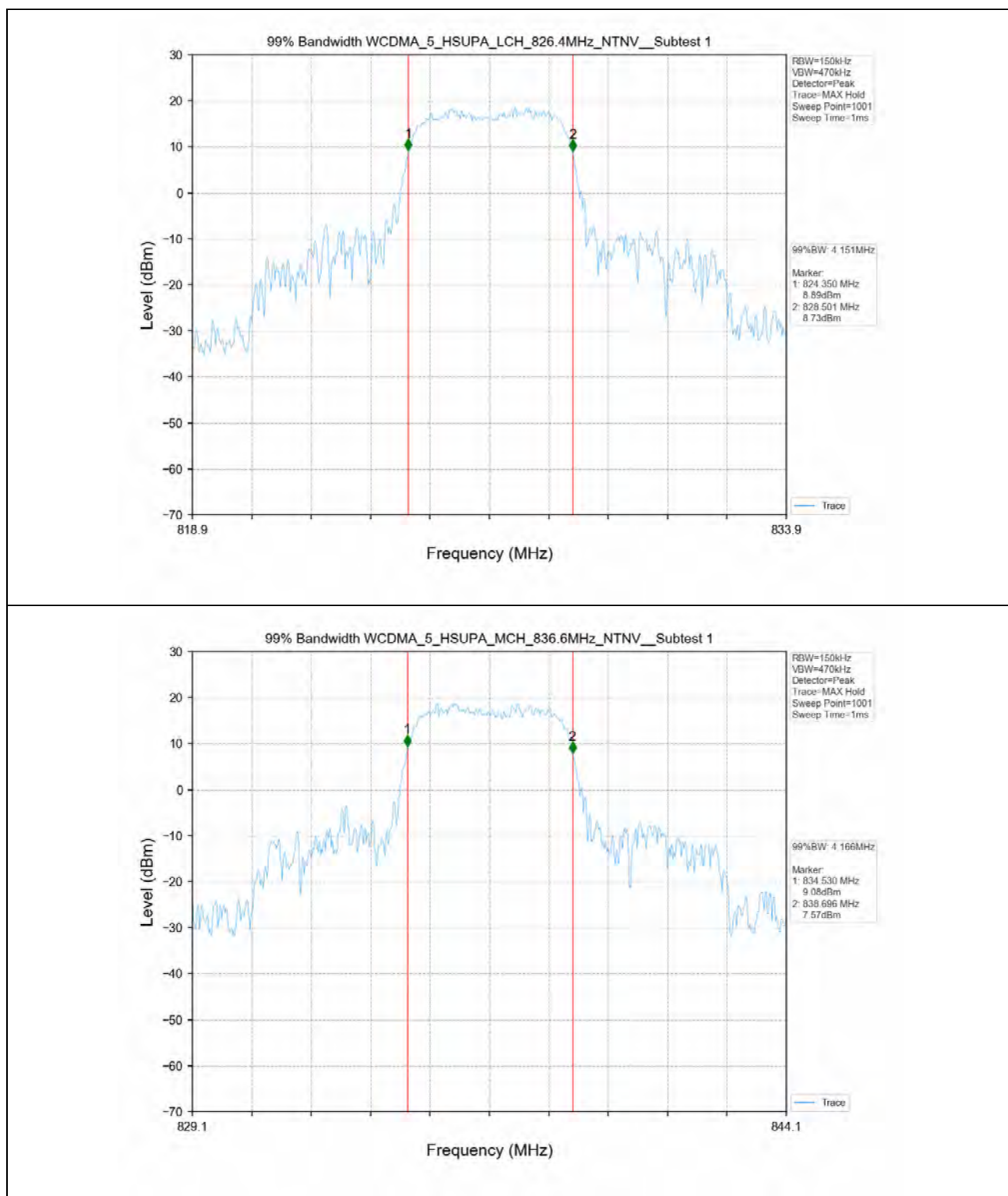
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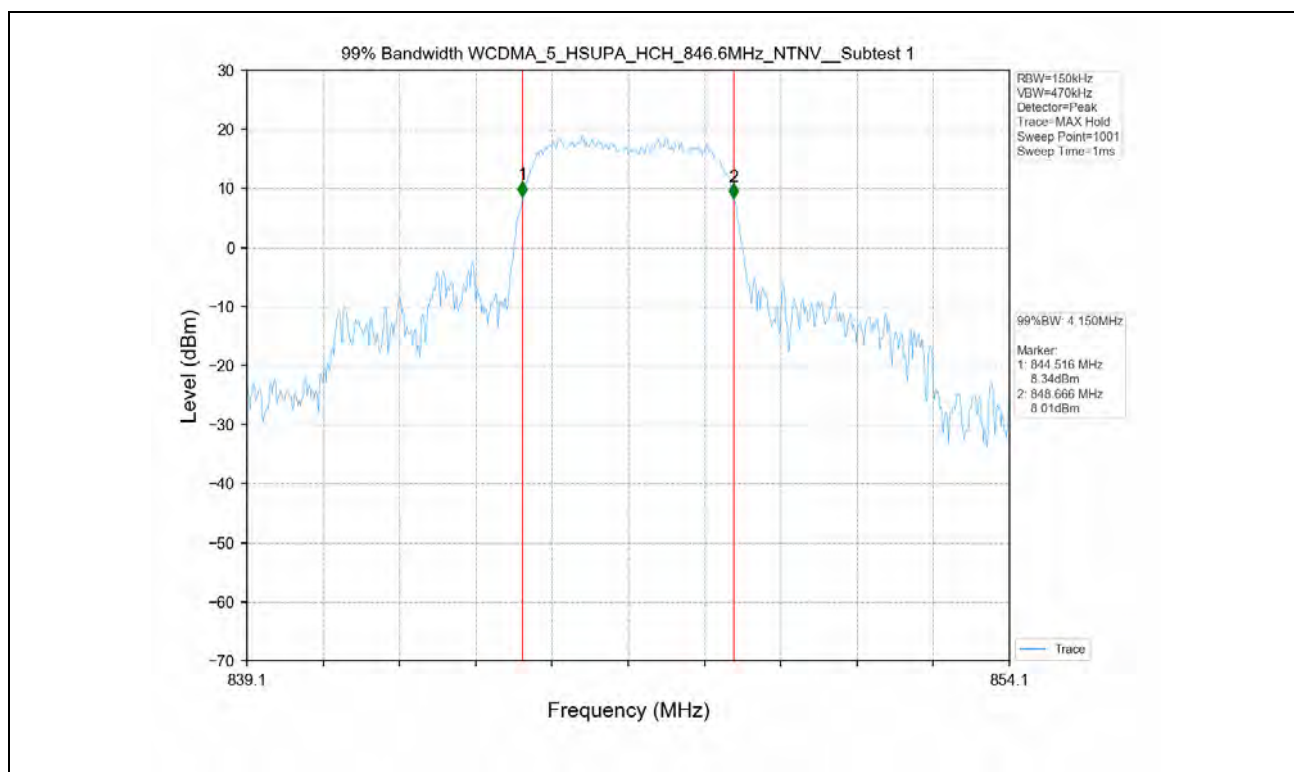
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Test Band: 5					
Test Mode	26dB Bandwidth (MHz)			Limit	Verdict
	LCH	MCH	HCH		
HSUPA	6.790	6.490	6.900	N/A	PASS
HSDPA	6.210	8.050	7.070	N/A	PASS
RMC	4.700	4.700	4.630	N/A	PASS

3.3 Test Graph

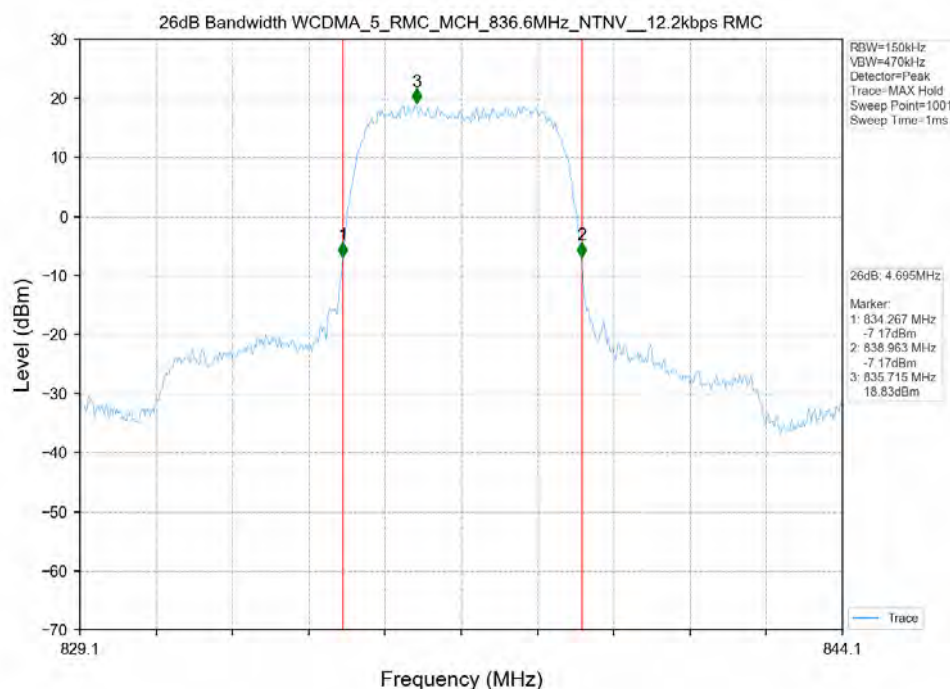
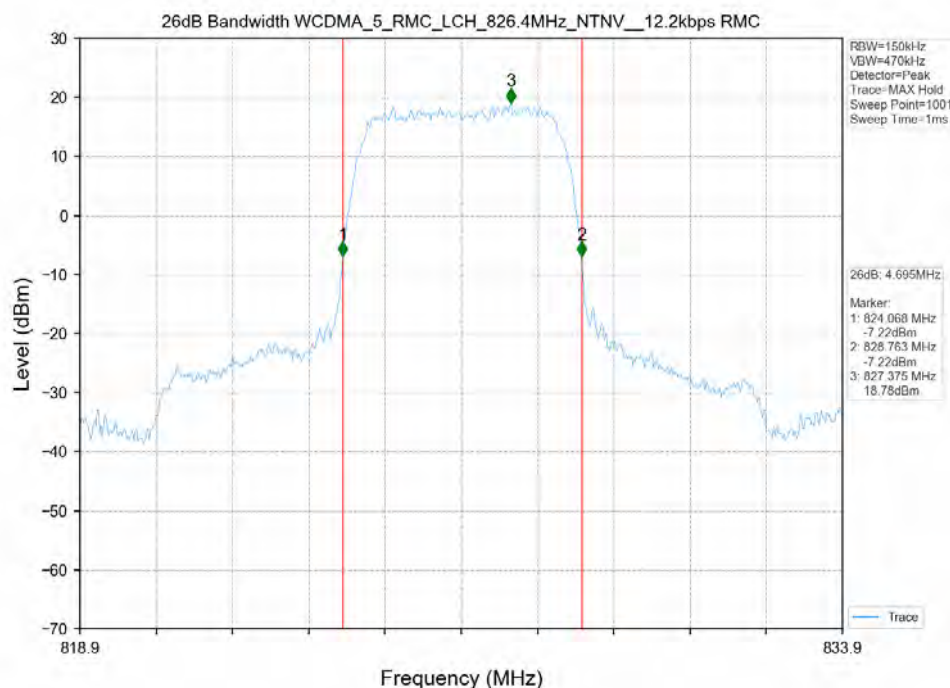


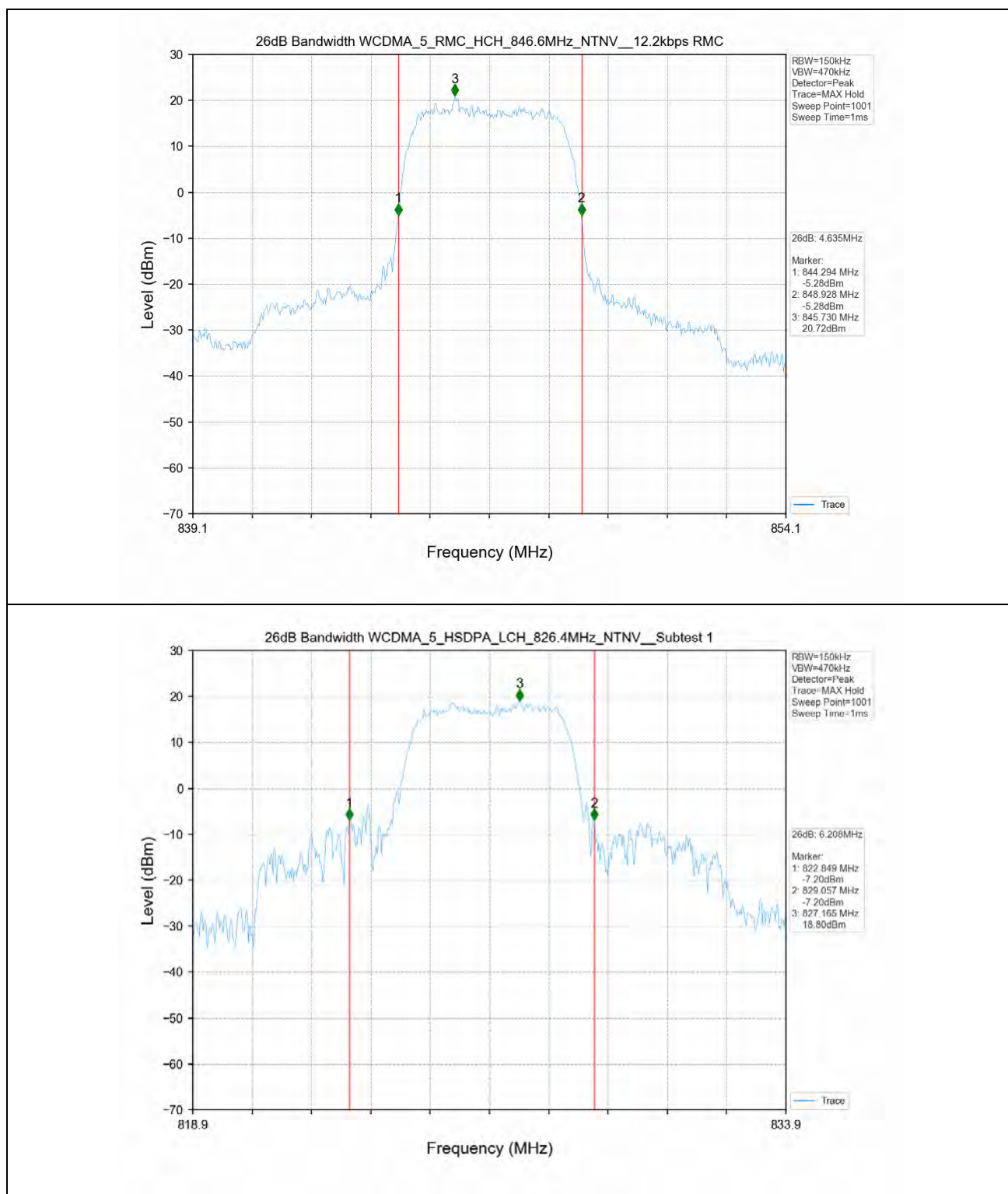
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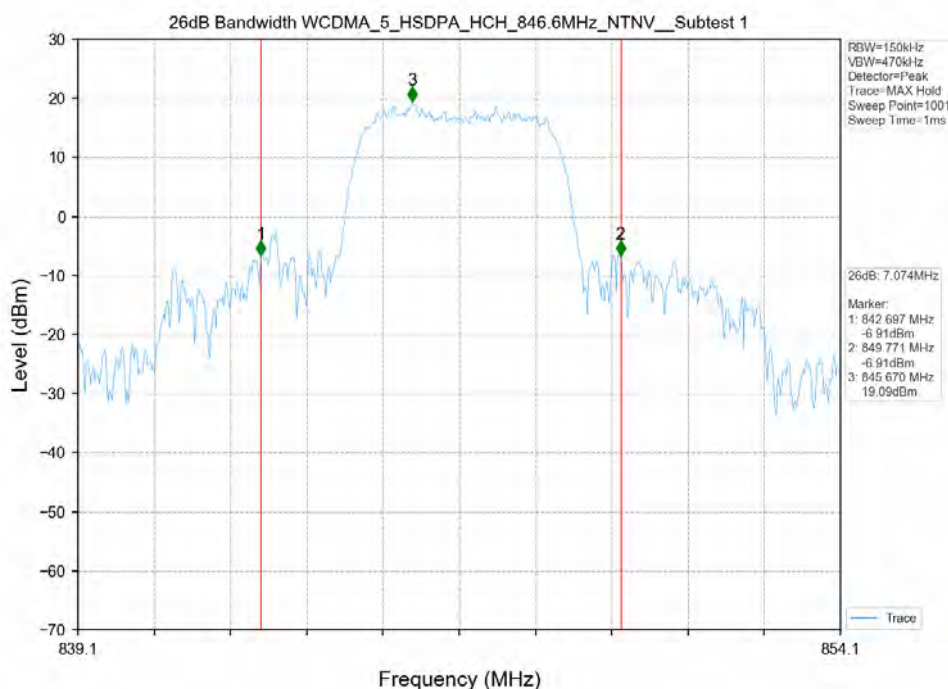
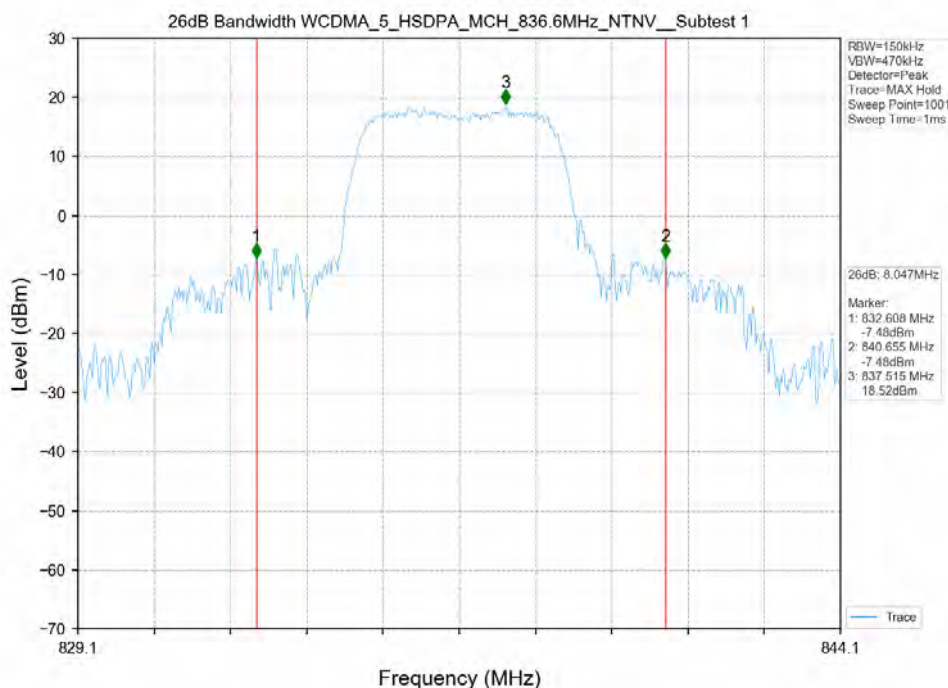
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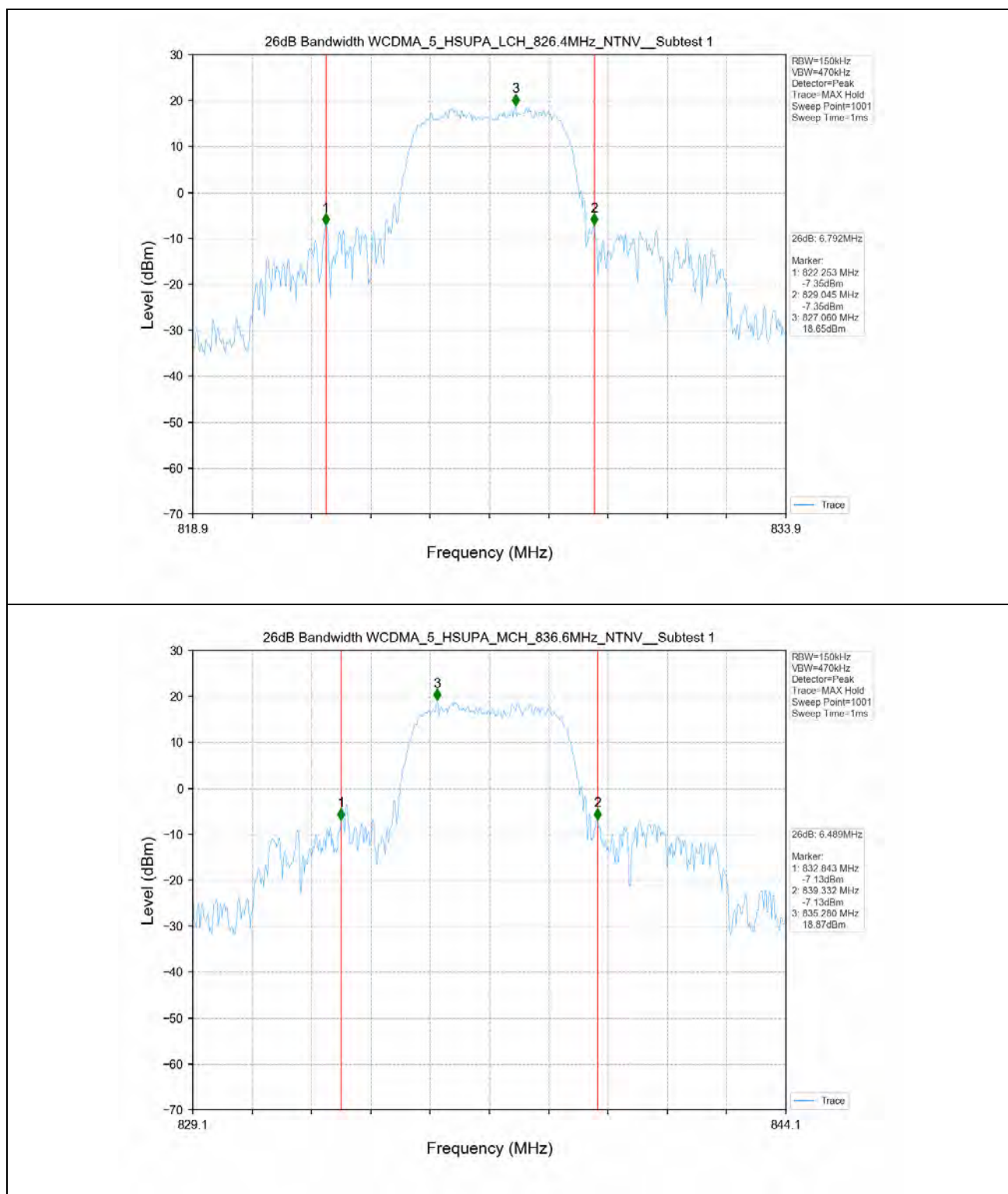
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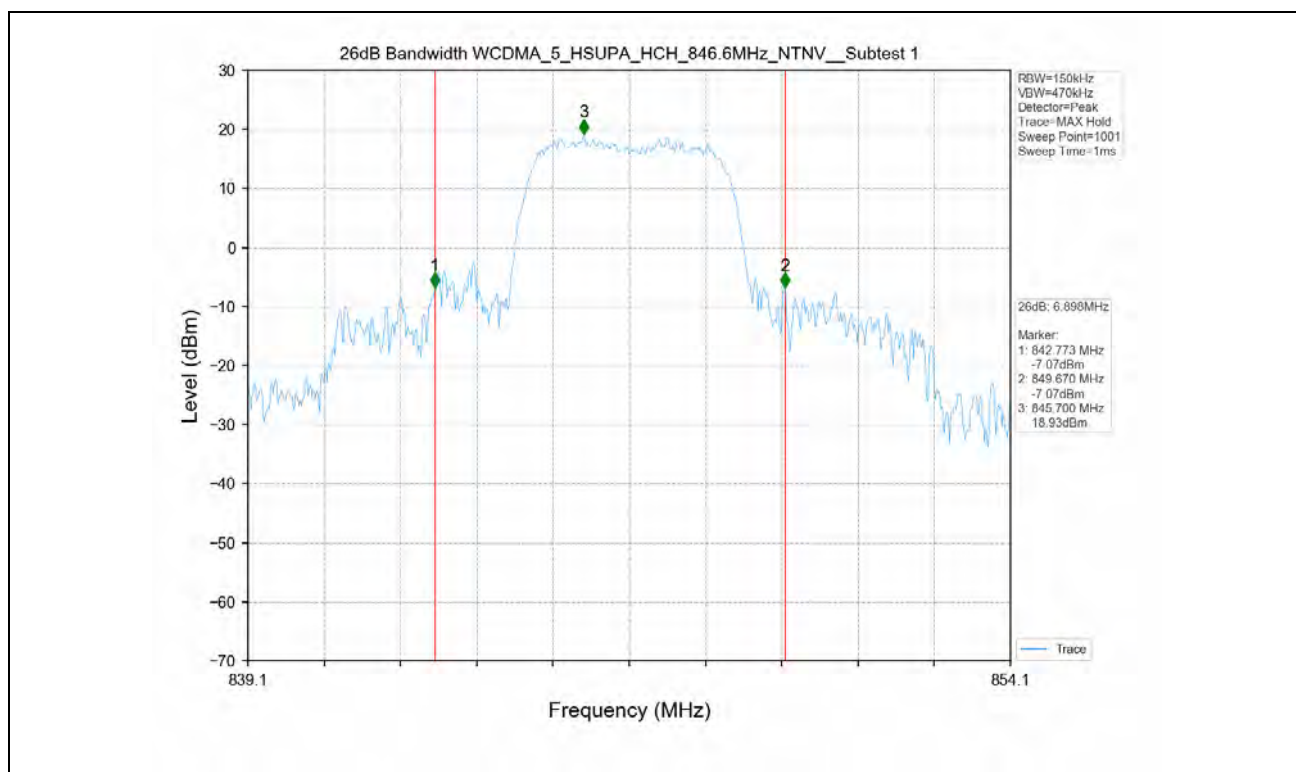
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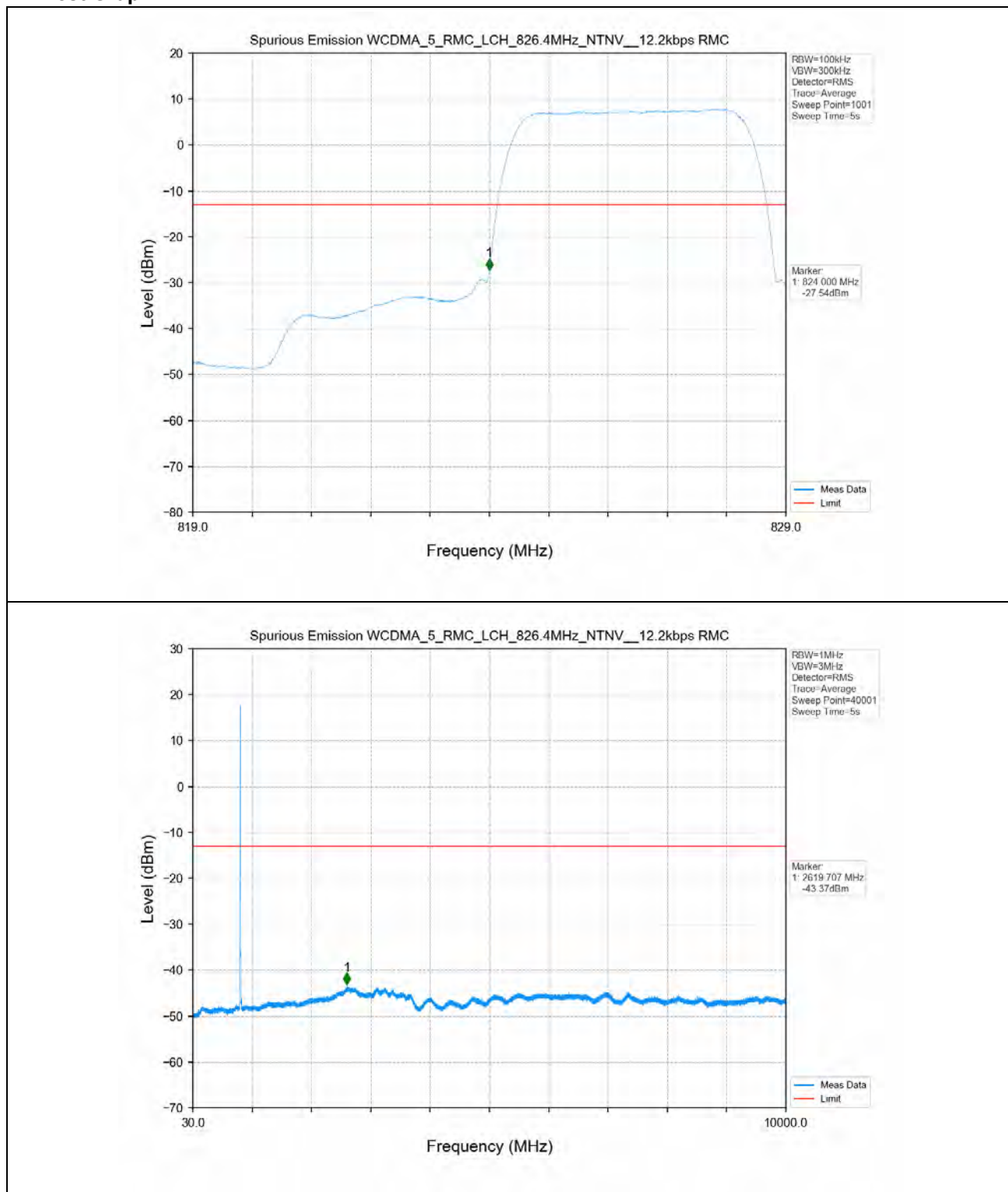


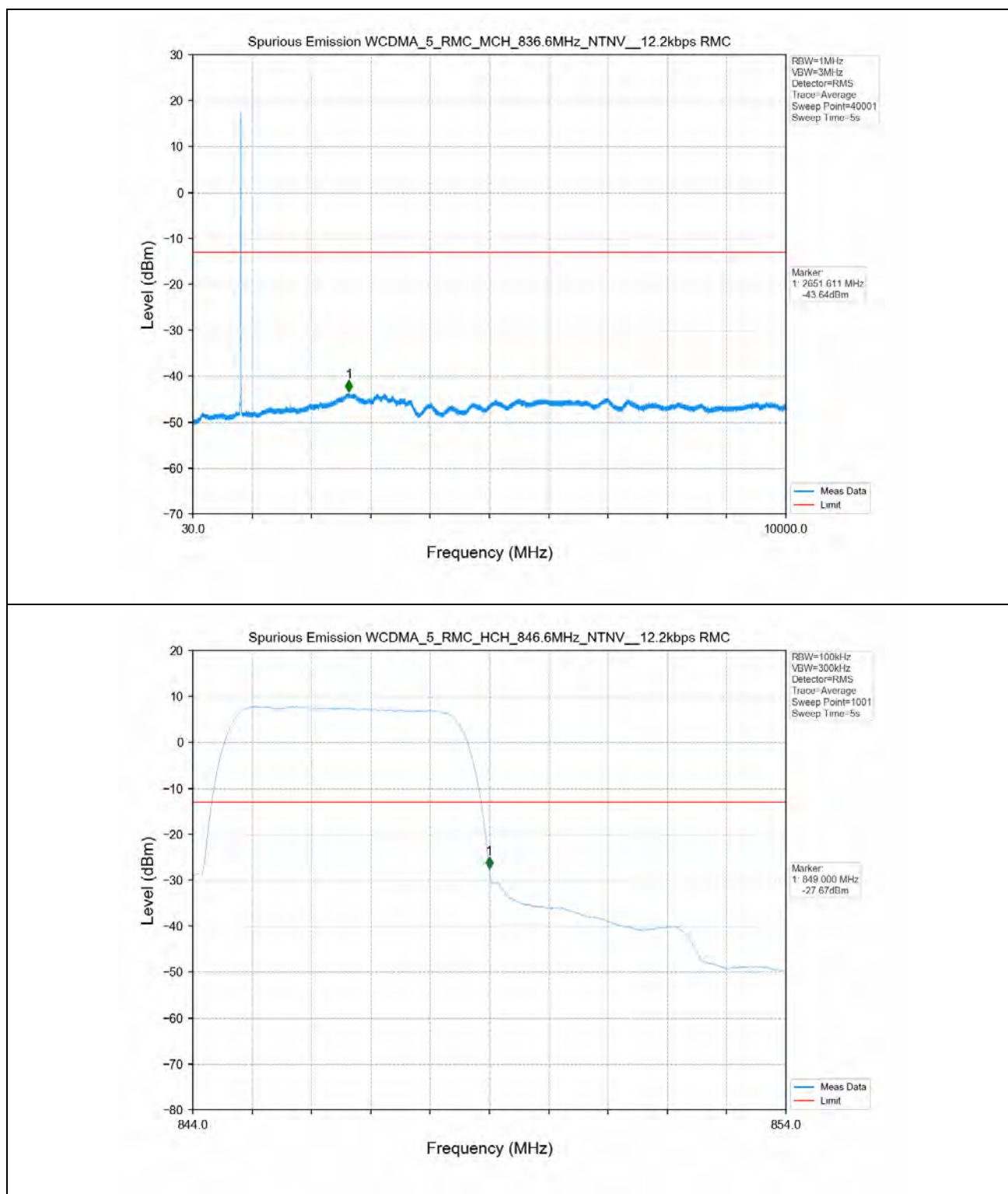




4. Spurious Emission

4.1 Test Graph



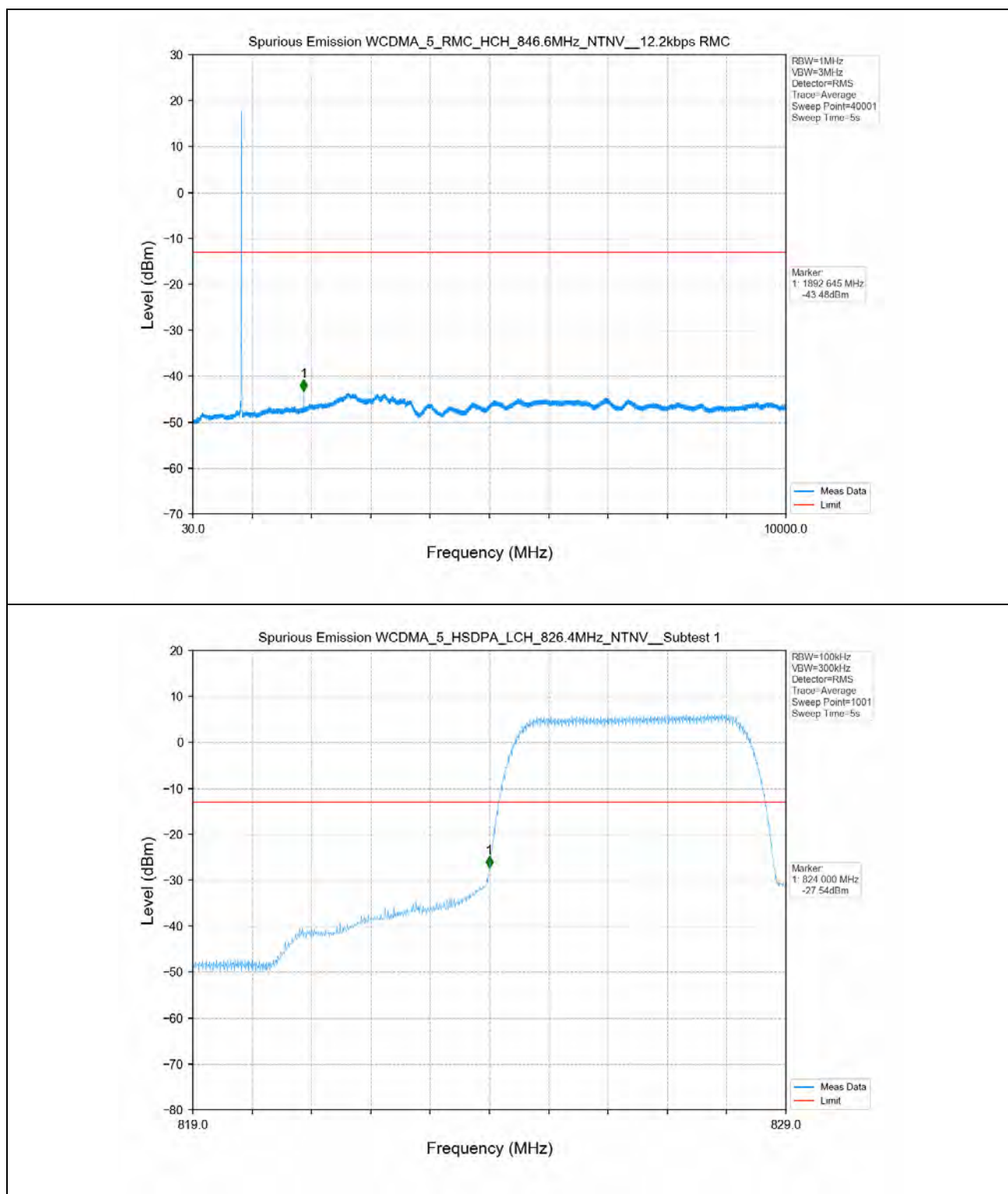


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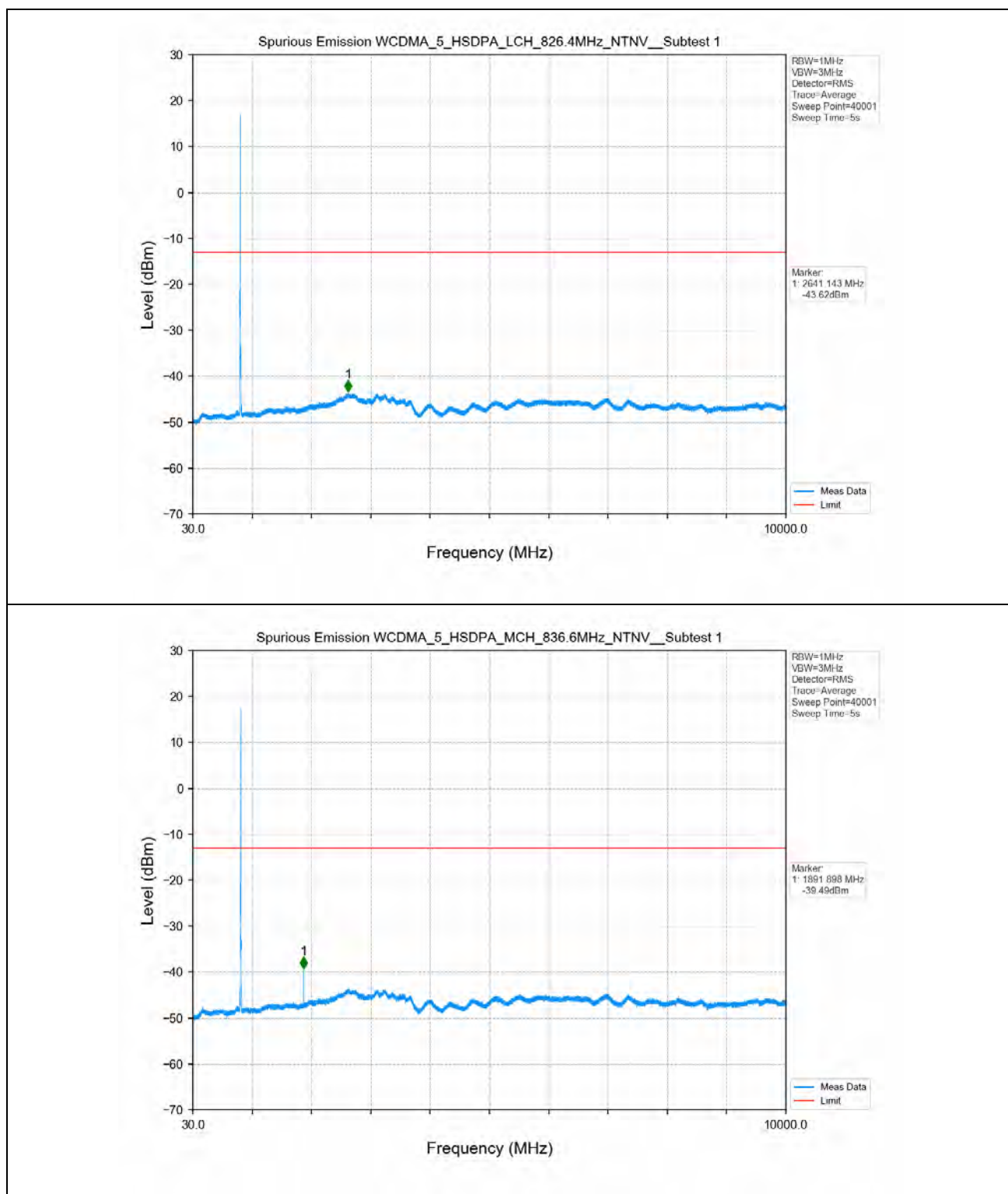


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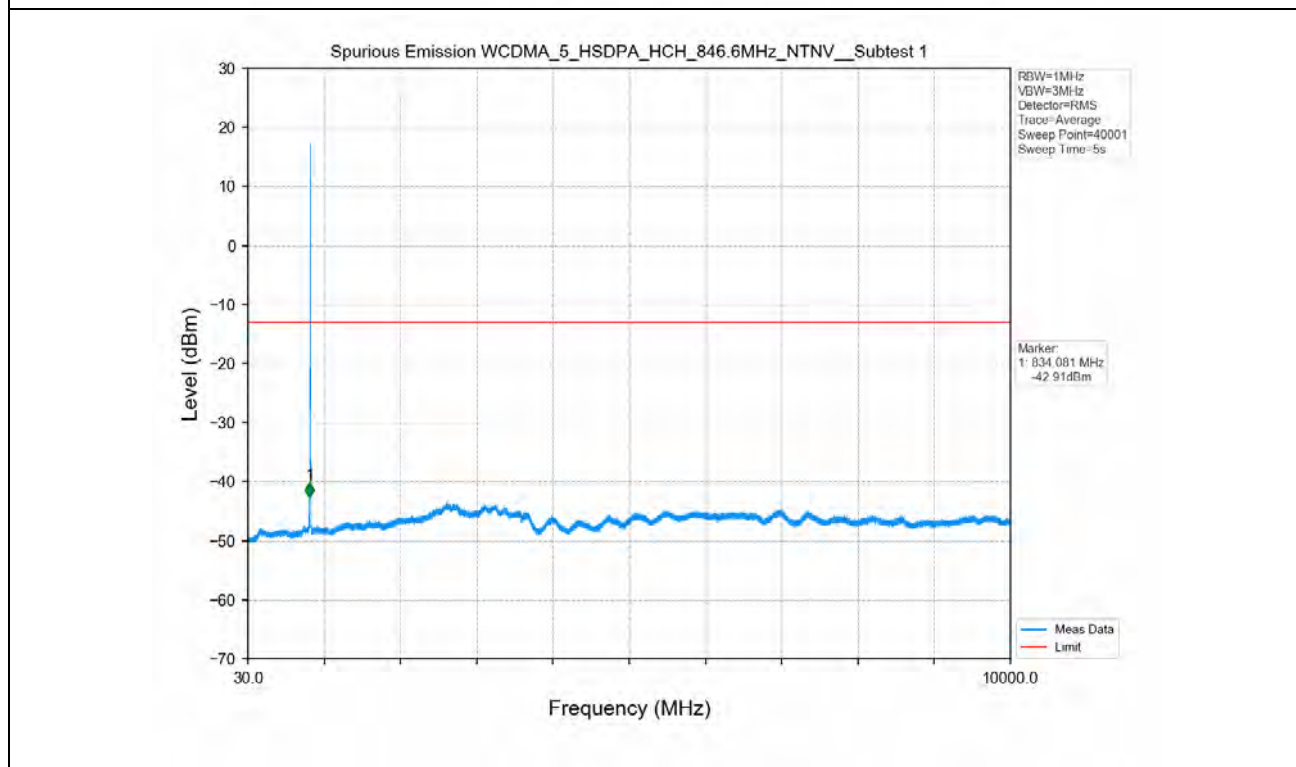
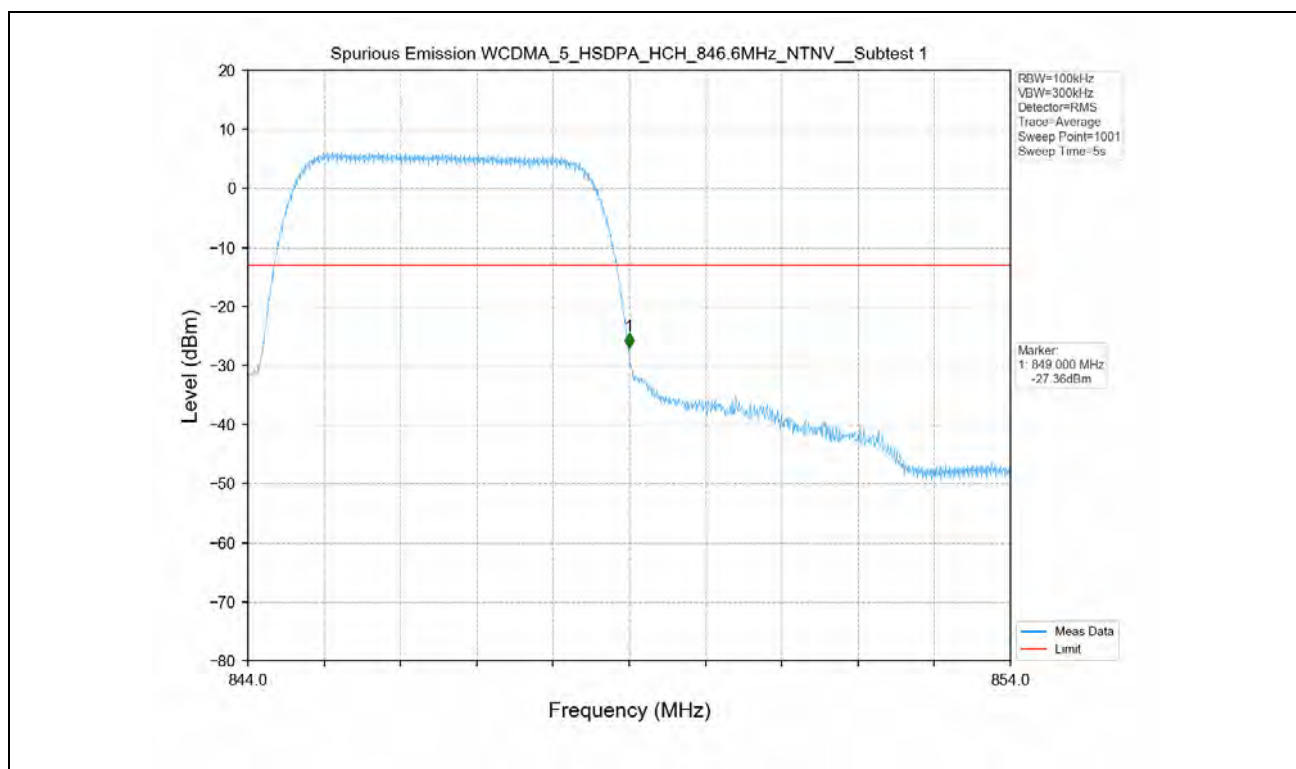


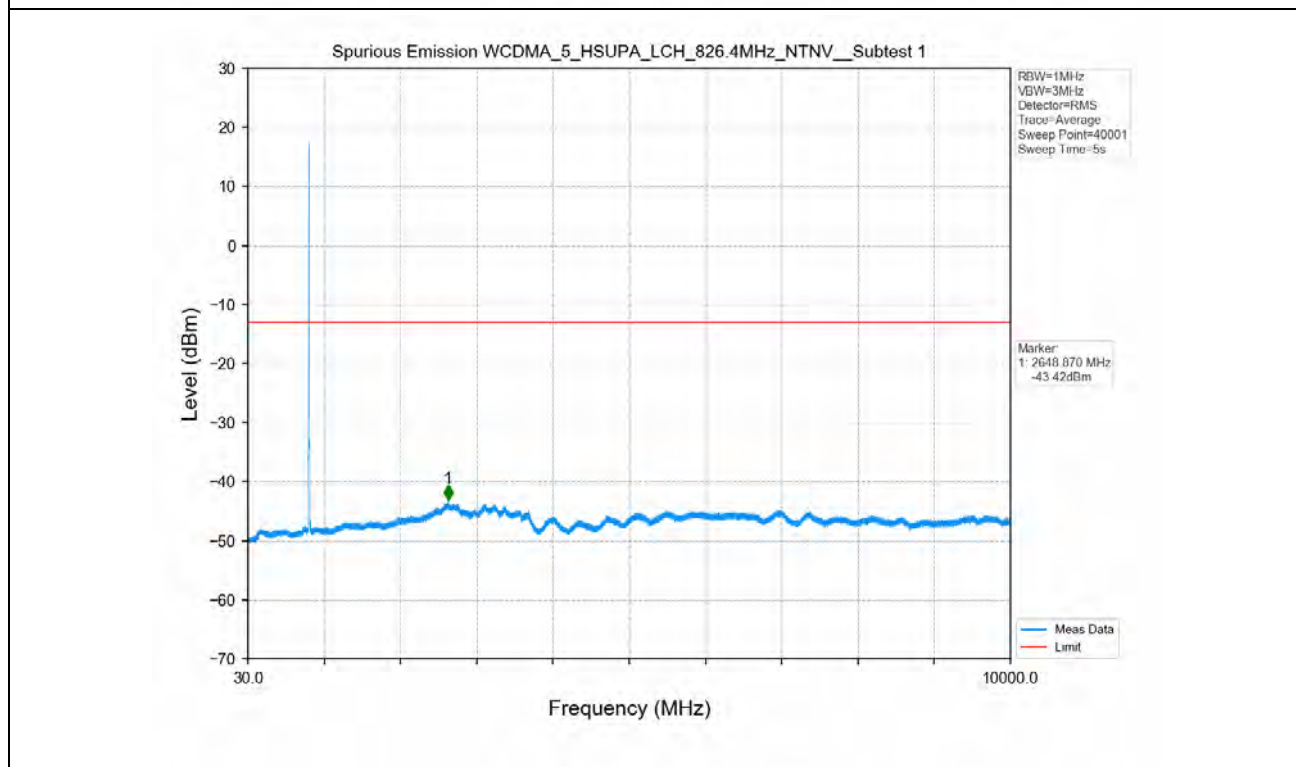
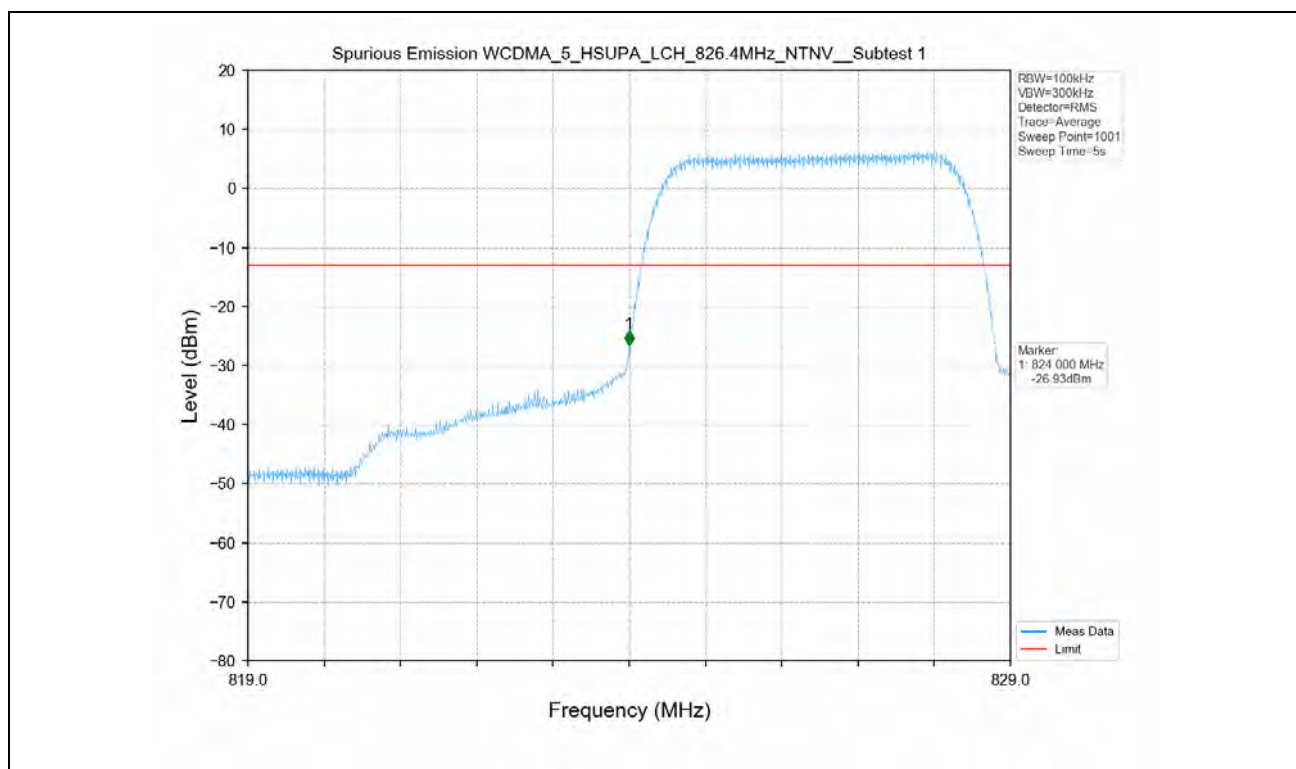
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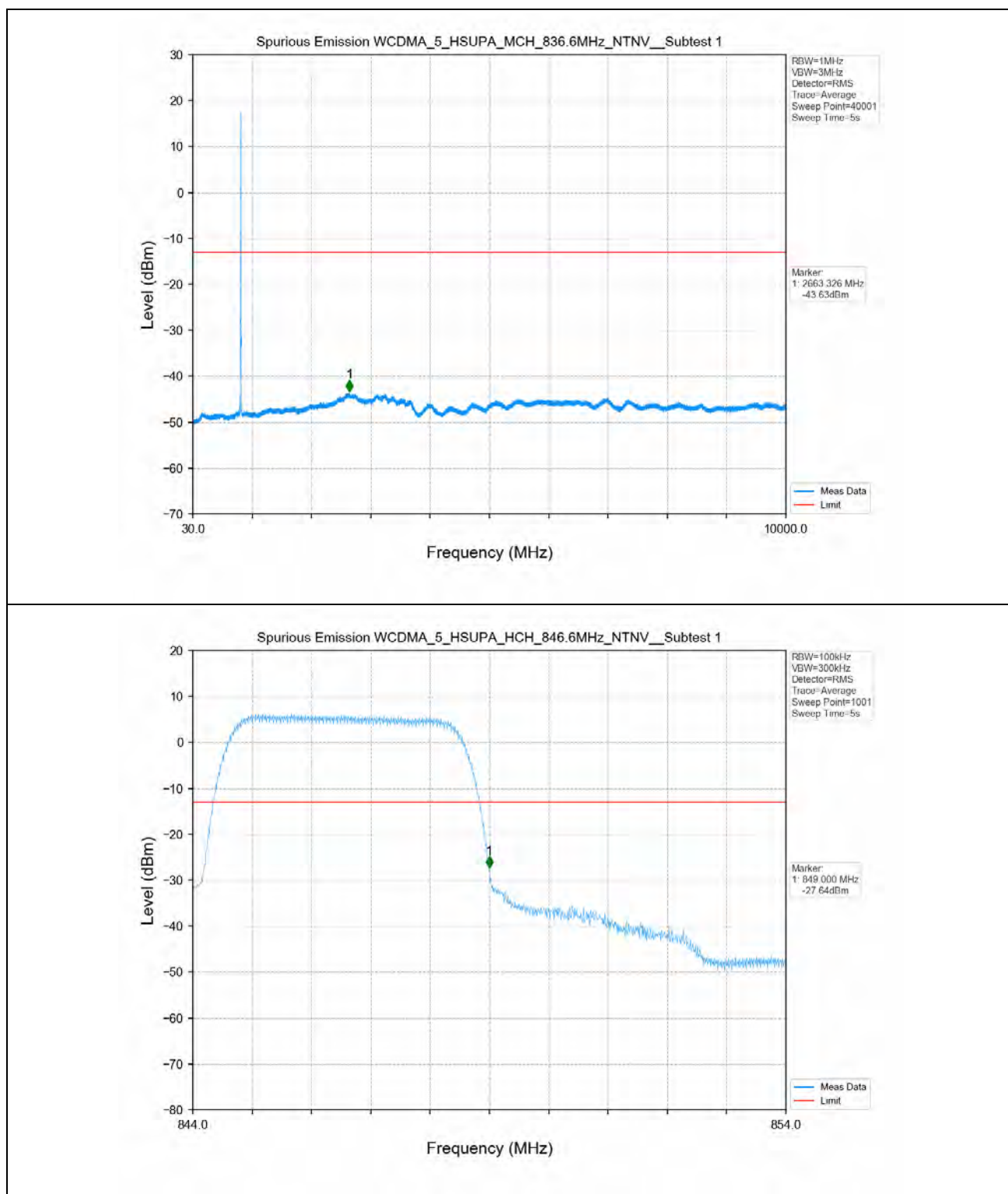
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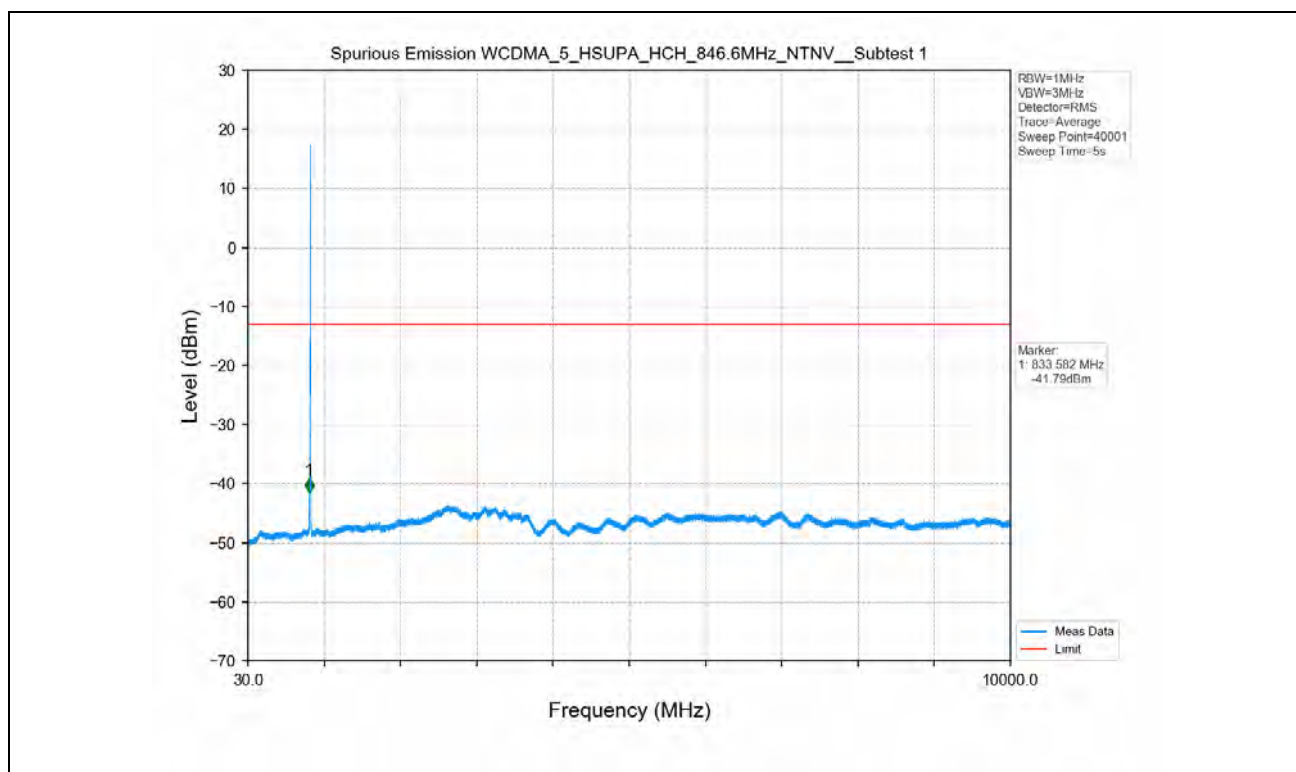
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5. Frequency stability

5.1 Test Result

Test Band: 5 (Frequency Error VS. Voltage)										
Test Mode	Test Temp.	Test Volt.	Freq. Error (Hz)			Freq. vs. rated (ppm)			Limit (ppm)	Verdict
			LCH	MCH	HCH	LCH	MCH	HCH		
HSUPA	NT	LV	-6.0000	-6.0000	-6.0000	-0.0080	-0.0076	-0.0082	2.50	PASS
		NV	-6.0000	-5.0000	-6.0000	-0.0083	-0.0068	-0.0072	2.50	PASS
		HV	-6.0000	-5.0000	-5.0000	-0.0080	-0.0071	-0.0064	2.50	PASS
HSDPA	NT	LV	-7.0000	-5.0000	-6.0000	-0.0095	-0.0068	-0.0074	2.50	PASS
		NV	-7.0000	-6.0000	-5.0000	-0.0094	-0.0078	-0.0067	2.50	PASS
		HV	-7.0000	-6.0000	-7.0000	-0.0089	-0.0076	-0.0092	2.50	PASS
RMC	NT	LV	-5.0000	-3.0000	-4.0000	-0.0065	-0.0043	-0.0055	2.50	PASS
		NV	-5.0000	-3.0000	-4.0000	-0.0063	-0.0038	-0.0053	2.50	PASS
		HV	-5.0000	-4.0000	-3.0000	-0.0065	-0.0053	-0.0047	2.50	PASS

Test Band: 5 (Frequency Error VS. Temperature)										
Test Mode	Test Volt.	Test Temp.	Freq. Error (Hz)			Freq. vs. rated (ppm)			Limit (ppm)	Verdict
			LCH	MCH	HCH	LCH	MCH	HCH		
HSUPA	NV	-30.00	-7.0000	-6.0000	-5.0000	-0.0088	-0.0077	-0.0067	2.50	PASS
		-20.00	-7.0000	-6.0000	-6.0000	-0.0085	-0.0075	-0.0072	2.50	PASS
		-10.00	-7.0000	-6.0000	-5.0000	-0.0095	-0.0080	-0.0068	2.50	PASS
		0.00	-6.0000	-5.0000	-6.0000	-0.0080	-0.0068	-0.0079	2.50	PASS
		10.00	-7.0000	-5.0000	-6.0000	-0.0089	-0.0065	-0.0076	2.50	PASS
		20.00	-6.0000	-5.0000	-6.0000	-0.0081	-0.0066	-0.0076	2.50	PASS
		30.00	-7.0000	-5.0000	-5.0000	-0.0088	-0.0069	-0.0069	2.50	PASS
		40.00	-7.0000	-5.0000	-5.0000	-0.0090	-0.0067	-0.0066	2.50	PASS
		50.00	-6.0000	-5.0000	-6.0000	-0.0082	-0.0067	-0.0073	2.50	PASS
HSDPA	NV	-30.00	-7.0000	-4.0000	-7.0000	-0.0089	-0.0057	-0.0090	2.50	PASS
		-20.00	-7.0000	-5.0000	-8.0000	-0.0090	-0.0070	-0.0097	2.50	PASS
		-10.00	-7.0000	-6.0000	-5.0000	-0.0089	-0.0080	-0.0070	2.50	PASS
		0.00	-7.0000	-5.0000	-5.0000	-0.0093	-0.0068	-0.0068	2.50	PASS
		10.00	-7.0000	-5.0000	-7.0000	-0.0092	-0.0071	-0.0085	2.50	PASS
		20.00	-7.0000	-5.0000	-5.0000	-0.0088	-0.0069	-0.0065	2.50	PASS
		30.00	-6.0000	-6.0000	-5.0000	-0.0082	-0.0076	-0.0070	2.50	PASS
		40.00	-6.0000	-6.0000	-6.0000	-0.0080	-0.0083	-0.0079	2.50	PASS
		50.00	-6.0000	-6.0000	-6.0000	-0.0079	-0.0078	-0.0079	2.50	PASS
RMC	NV	-30.00	-4.0000	-3.0000	-3.0000	-0.0060	-0.0044	-0.0042	2.50	PASS
		-20.00	-4.0000	-3.0000	-3.0000	-0.0054	-0.0041	-0.0039	2.50	PASS
		-10.00	-5.0000	-2.0000	-3.0000	-0.0065	-0.0033	-0.0043	2.50	PASS
		0.00	-5.0000	-2.0000	-3.0000	-0.0070	-0.0035	-0.0042	2.50	PASS



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		10.00	-5.0000	-3.0000	-3.0000	-0.0068	-0.0040	-0.0044	2.50	PASS
		20.00	-5.0000	-3.0000	-4.0000	-0.0063	-0.0038	-0.0049	2.50	PASS
		30.00	-5.0000	-4.0000	-3.0000	-0.0067	-0.0049	-0.0046	2.50	PASS
		40.00	-4.0000	-3.0000	-3.0000	-0.0051	-0.0039	-0.0041	2.50	PASS
		50.00	-4.0000	-4.0000	-3.0000	-0.0059	-0.0051	-0.0039	2.50	PASS



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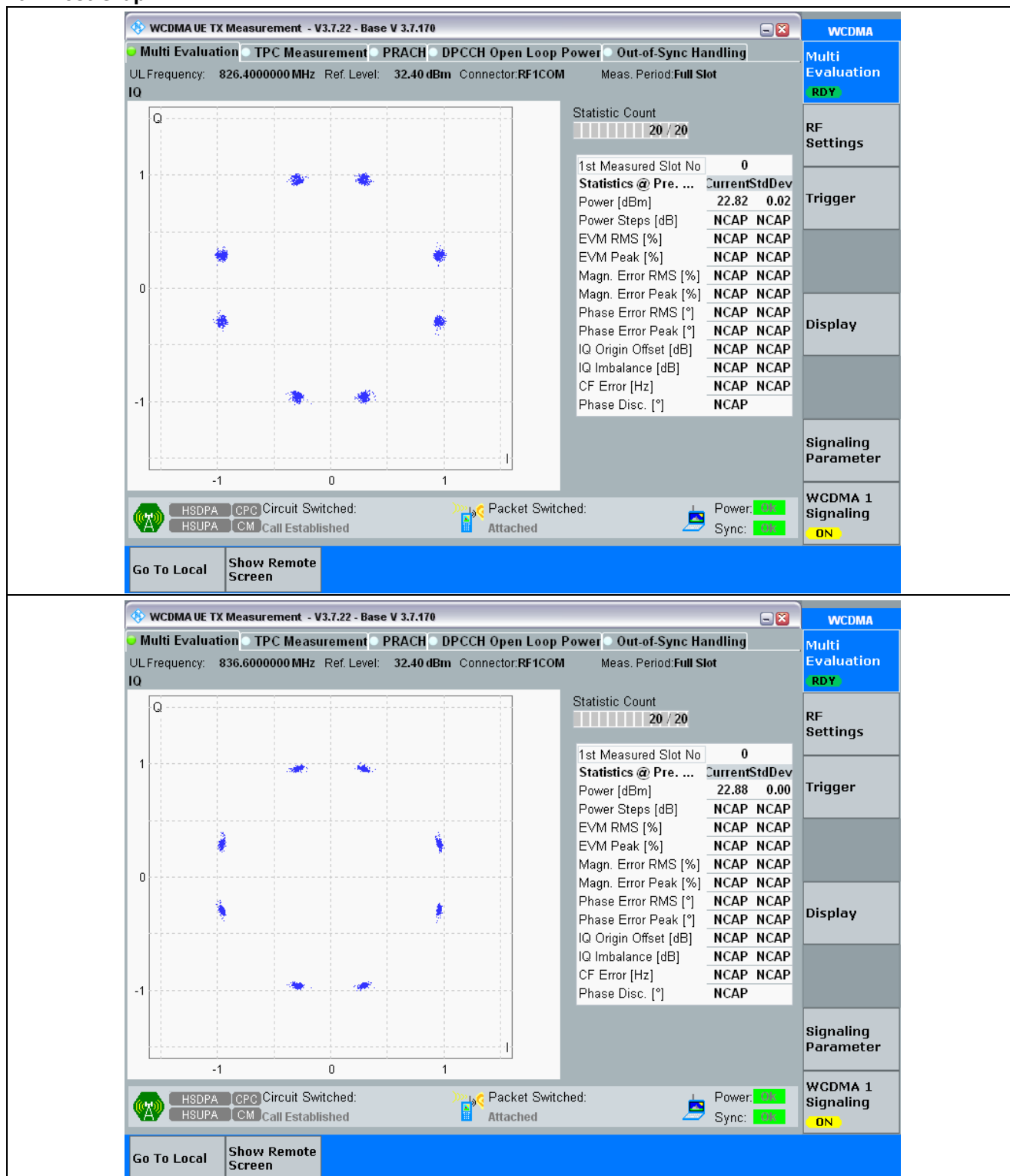
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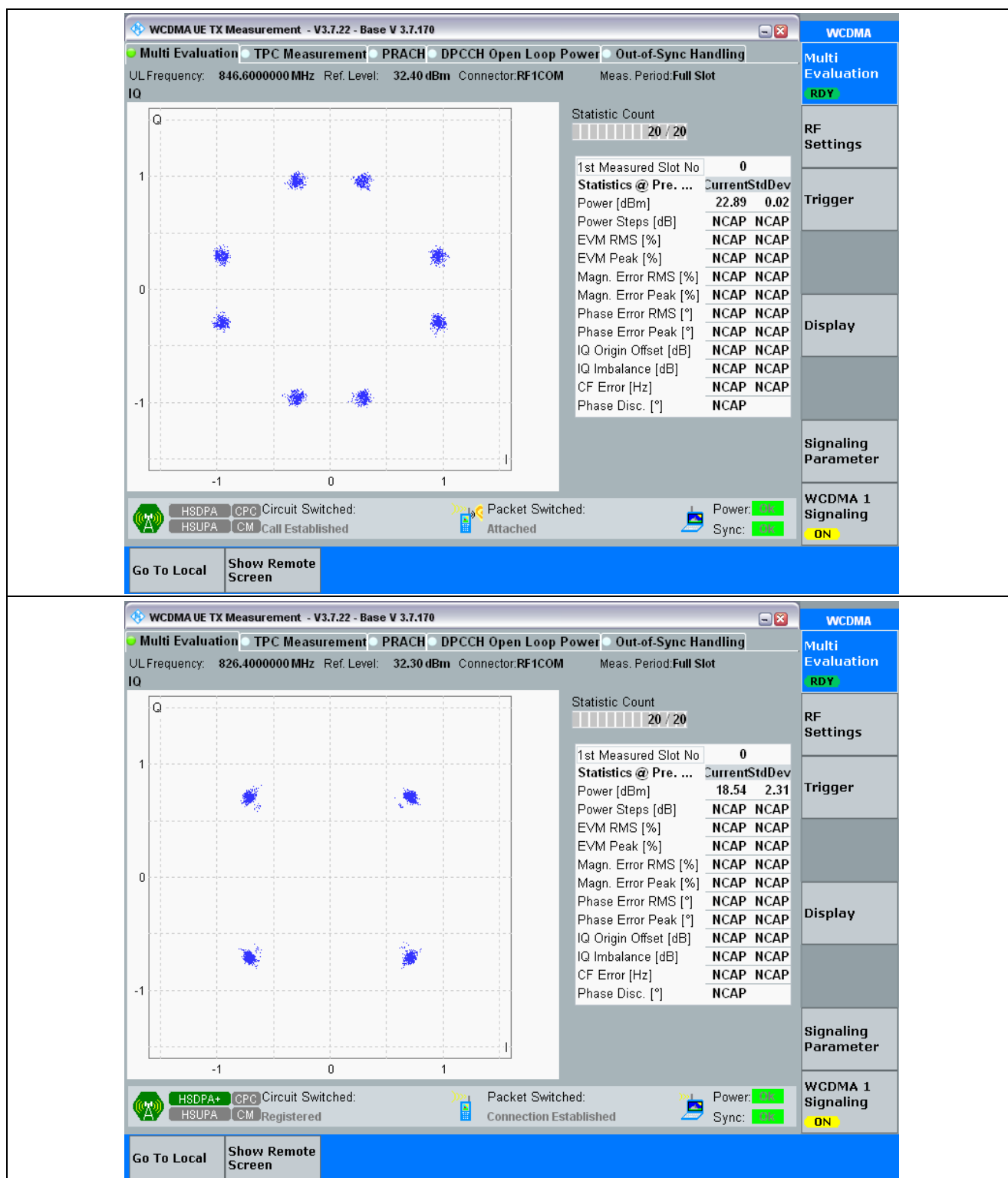
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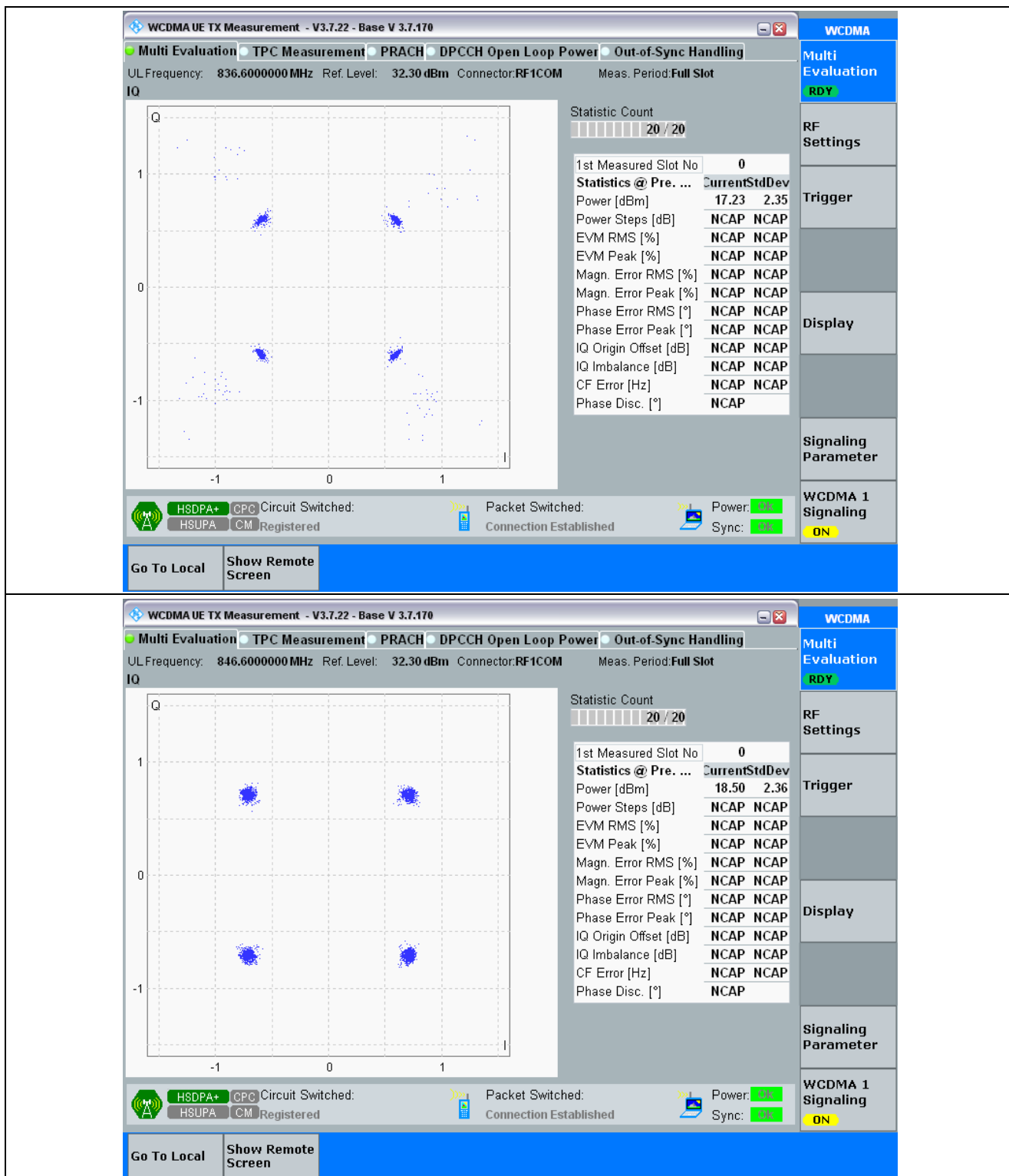
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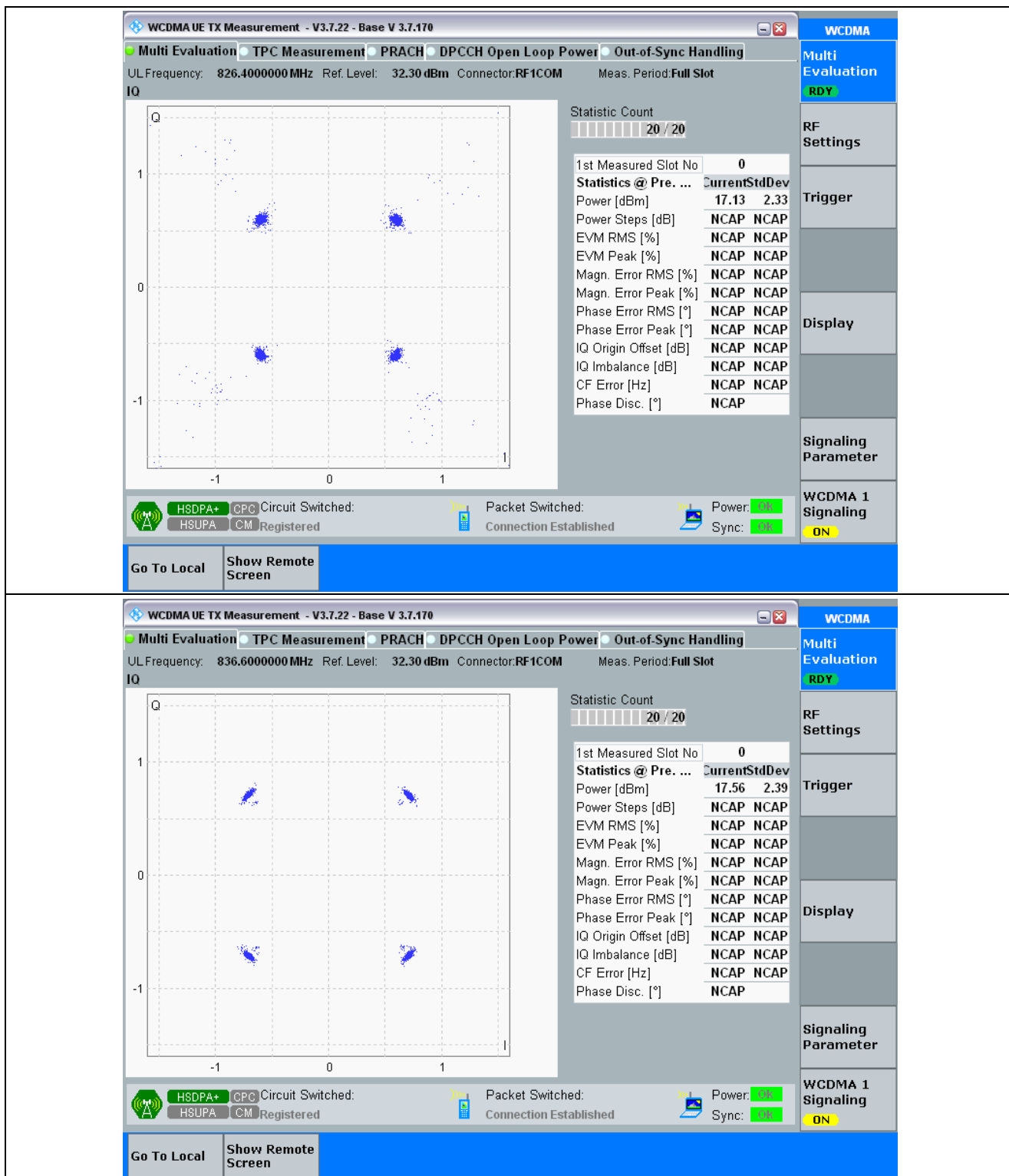
6. Modulation Characteristics

6.1 Test Graph





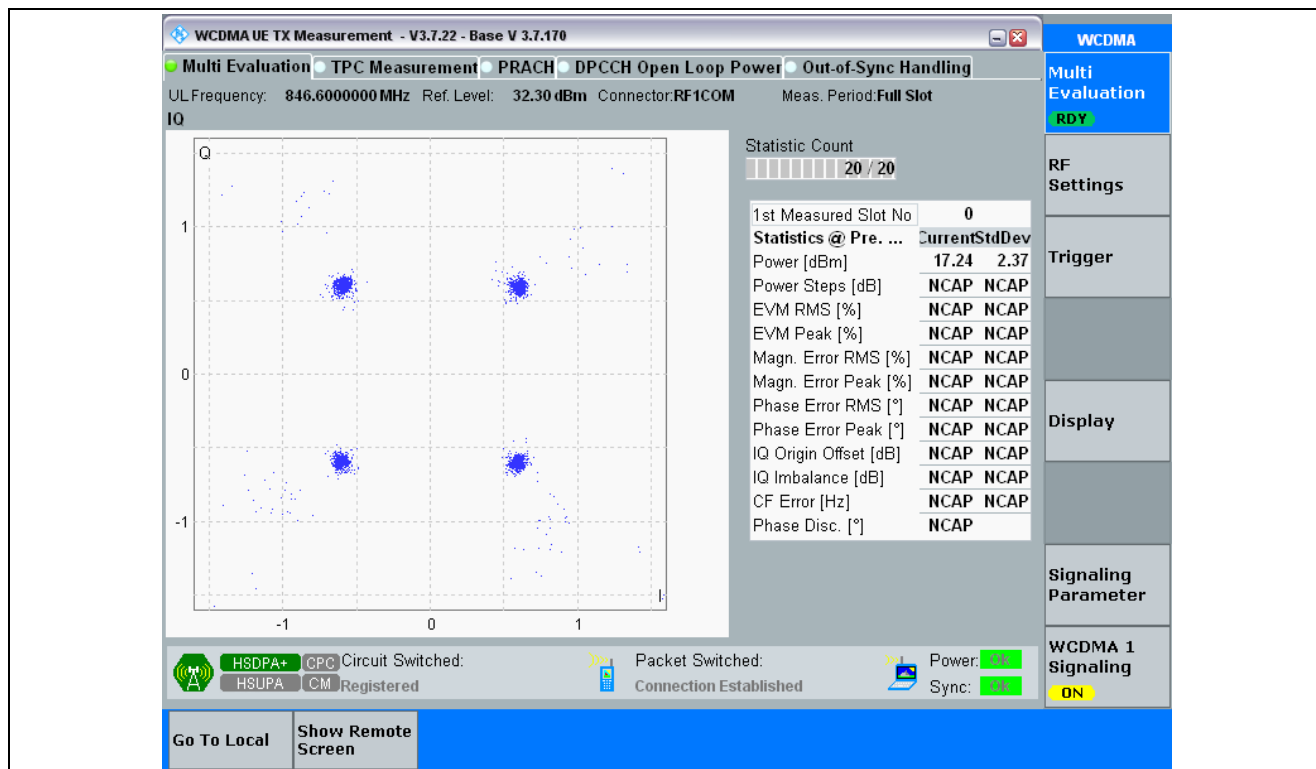






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